

- 4 The distance between the centres of two villages is 8 km.  
A map on which they are shown has a scale of 1 : 50 000.

Calculate the distance between the centres of the two villages on the map.  
Give your answer in centimetres.

*Answer* ..... cm [2]

---

- 11 Without using your calculator, work out  $\frac{1}{2}\left(\frac{2}{3} + \frac{1}{4}\right)$ .

Show all your working clearly and give your answer as a fraction.

*Answer* ..... [3]

---

- 6 Use your calculator to find  $\sqrt{\frac{45 \times 5.75}{3.1 + 1.5}}$ .

Answer ..... [2]

---

- 7 (a) Calculate 60% of 200.

Answer(a) ..... [1]

- (b) Write 0.36 as a fraction.  
Give your answer in its lowest terms.

Answer(b) ..... [2]

---

- 8 A circle has a radius of 50 cm.

- (a) Calculate the area of the circle in  $\text{cm}^2$ .

Answer(a) .....  $\text{cm}^2$  [2]

- (b) Write your answer to **part (a)** in  $\text{m}^2$ .

Answer(b) .....  $\text{m}^2$  [1]

---

- 18 (a) Lucinda invests \$500 at a rate of 5% per year **simple** interest.

Calculate the interest Lucinda has after 3 years.

*Answer(a)* \$ ..... [2]

- (b) Andy invests \$500 at a rate of 5% per year **compound** interest.

Calculate how much more interest Andy has than Lucinda after 3 years.

*Answer(b)* \$ ..... [4]

---

- 1 The temperature on Monday is  $3^{\circ}\text{C}$ .  
On Tuesday it is  $5^{\circ}\text{C}$  lower.

Find the temperature on Tuesday.

Answer .....  $^{\circ}\text{C}$  [1]

---

- 2 Joseph changed 120 New Zealand dollars (NZ\$) into Australian dollars (A\$) when the exchange rate was

$$\text{NZ\$1} = \text{A\$0.796}.$$

Calculate the exact amount he received.

Answer A\$ ..... [1]

---

- 3 A bus leaves a port every 15 minutes, starting at 09 00.  
The last bus leaves at 17 30.

How many times does a bus leave the port during one day?

Answer ..... [2]

---

- 4 Write the following in order of size, starting with the smallest.

$$\frac{9}{8} \quad 1.2 \quad 115\% \quad 1\frac{1}{6}$$

Answer ..... < ..... < ..... < ..... [2]

---



- 5 Mortar is a mixture of cement, sand and lime in the ratio

cement : sand : lime = 1 : 5 : 2.

Calculate how much sand there is in a 12 kg bag of this mortar.

Answer ..... kg [2]

---

- 6 Find the cube root of 96.  
Give your answer correct to 2 decimal places.

Answer ..... [2]

---

- 7 Write these numbers in standard form.

(a) 734 000 000

Answer(a) ..... [1]

(b) 0.000587

Answer(b) ..... [1]

---

- 8 The population,  $P$ , of Brunei in 2008 was 400 000 correct to the nearest 1000.

Complete the statement about the value of  $P$ .

*Answer* .....  $\leq P <$  ..... [2]

---

- 9 Use your calculator to find the value of

(a)  $3^0 \times 2.5^2$ ,

*Answer(a)* ..... [1]

(b)  $2.5^{-2}$ .

*Answer(b)* ..... [1]

---

- 12 Jiwan incorrectly wrote  $1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} = 1\frac{3}{9}$ .

Show the correct working and write down the answer as a mixed number.

*Answer* ..... [3]

**16 (a)** Write down a common multiple of 8 and 14.

*Answer(a)* ..... [1]

**(b) (i)** Complete the list of factors of 81.

1, ..... , ..... , ..... , 81 [2]

**(ii)** Write down the prime factor of 81.

*Answer(b)(ii)* ..... [1]

---

- 5 Write the following in order of size, starting with the smallest.

$$0.525 \quad \frac{11}{21} \quad \frac{111}{211} \quad 52.4\%$$

*Answer* ..... < ..... < ..... < ..... [2]

---

- 6 Thomas fills glasses from a jug containing 2.4 litres of water.  
Each glass holds 30 centilitres.

How many glasses can Thomas fill?

*Answer* ..... [2]

---

- 7 Martha divides \$240 between spending and saving in the ratio

$$\text{spending} : \text{saving} = 7 : 8.$$

Calculate the amount Martha has for spending.

*Answer* \$ ..... [2]

---

8                                      210        211        212        213        214        215        216

From the list of numbers, find

(a) a prime number,

*Answer(a)* ..... [1]

(b) a cube number.

*Answer(b)* ..... [1]

---

9 Calculate the selling price of a bicycle bought for \$120 and sold at a profit of 15%.

*Answer \$* ..... [2]

---

- 15 For her holiday, Dina changed 500 Swiss francs (CHF) into pounds (£).  
The rate was £1 = CHF 1.6734.

Calculate how much Dina received in pounds.  
Give your answer correct to 2 decimal places.

Answer £ ..... [2]

---

- 12 The population of a city is 128 000, correct to the nearest thousand.

(a) Write 128 000 in standard form.

Answer(a) ..... [1]

(b) Write down the upper bound of the population.

Answer(b) ..... [1]

---

- 13 Pedro invested \$800 at a rate of 5% per year **compound** interest.  
Calculate the **total** amount he has after 2 years.

Answer \$ ..... [2]

---

- 17 The scale of a map is 1 : 500 000.  
On the map the centres of two cities are 26 cm apart.

Calculate the actual distance, in kilometres, between the centres of the two cities.

*Answer* ..... km [2]

---

- 18 Show that  $3^{-2} + 2^{-2} = \frac{13}{36}$ .

Write down all the steps of your working.

*Answer*

[2]

---

- 19 In Vienna, the mid-day temperatures, in  $^{\circ}\text{C}$ , are recorded during a week in December.  
This information is shown below.

-2      2      1      -3      -1      -2      0

Calculate

- (a) the difference between the highest temperature and the lowest temperature,

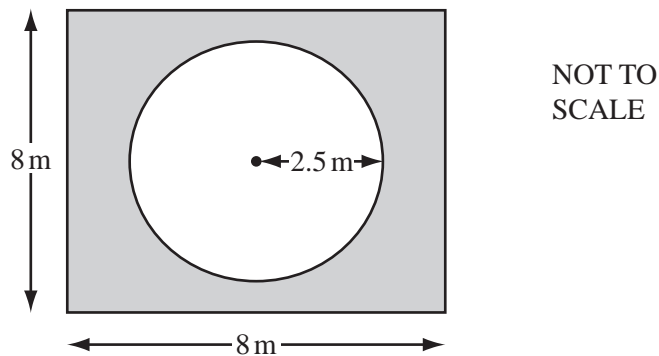
*Answer(a)* .....  $^{\circ}\text{C}$  [1]

- (b) the mean temperature.

*Answer(b)* .....  $^{\circ}\text{C}$  [2]

---

20



The diagram shows a circular pool of radius 2.5 m.  
A square piece of land surrounds the pool.  
Each side of the square is 8 m long.

Calculate the shaded area of the land that surrounds the pool.

*Answer* .....  $\text{m}^2$  [3]

---



22 (a) Calculate  $\frac{700}{28.6^3}$ .

*Answer(a)* ..... [1]

(b) Work out  $(8 \times 10^6)^2$ , giving your answer in standard form.

*Answer(b)* ..... [2]

---

- 1 (a) Write twenty five million in figures.

Answer(a) ..... [1]

- (b) Write the following in order of size, starting with the smallest.

$$\frac{2}{3} \quad 65\% \quad 0.6$$

Answer(b) ..... < ..... < ..... [1]

- (c) In a sale a coat costing \$250 is reduced to \$200.

Find the percentage decrease in the cost.

Answer(c) ..... % [3]

- 1 A concert hall has 1540 seats.

Calculate the number of people in the hall when 55% of the seats are occupied.

Answer ..... [1]

---

- 2 (a) Write down in figures the number twenty thousand three hundred and seventy six.

Answer(a) ..... [1]

- (b) Write your answer to **part (a)** correct to the nearest hundred.

2 The distance between Geneva and Gstaad is 150 km.

(a) Write 150 in standard form.

*Answer(a)* ..... [1]

(b) A car took  $1\frac{1}{2}$  hours to travel from Geneva to Gstaad.

Calculate the average speed of the car.

*Answer(b)* ..... km/h [1]

(c) A bus left Gstaad at 10 15.  
It arrived in Geneva at 12 30.

Calculate the time, in hours and minutes, that the bus took for the journey.

*Answer(c)* ..... h ..... min [1]

(d) Another bus left Geneva at 13 55.  
It travelled at an average speed of 60 km/h.

Find the time it arrived in Gstaad.

*Answer(d)* ..... [2]

(e) The distance of 150 km is correct to the nearest 10 km.

Complete the statement for the distance,  $d$  km, from Geneva to Gstaad.

*Answer(e)* .....  $\leq d <$  ..... [2]

3                      36            29            41            45            15            10            13

Use the numbers in the list above to answer all the following questions.

(a) Write down

(i) two even numbers,

*Answer(a)(i)* ..... , ..... [1]

(ii) two prime numbers,

*Answer(a)(ii)* ..... , ..... [2]

(iii) a square number,

*Answer(a)(iii)* ..... [1]

(iv) two factors of 90.

*Answer(a)(iv)* ..... , ..... [2]

(b) (i) Calculate the mean of the seven numbers.

*Answer(b)(i)* ..... [2]

(ii) Find the median.

*Answer(b)(ii)* ..... [2]

(iii) Find the range.

*Answer(b)(iii)* ..... [1]

## 4 (a) Using the exchange rates

$\$1 = 0.70$  Euros and  $\$1 = 90$  Yen

change

(i) \$100 to Euros,

Answer(a)(i) ..... Euros [1]

(ii) 100 Yen to dollars.

Answer(a)(ii) \$ ..... [2]

- (b) Tania went on holiday to Switzerland.  
The exchange rate was  $\$1 = 1.04$  Swiss francs (CHF).  
She changed \$1500 to Swiss francs and paid 1% commission.

(i) How much commission, in dollars, did she pay?

Answer(b)(i) \$ ..... [1]

(ii) Show that she received CHF 1544.40.

Answer (b)(ii)

[2]

- (c) Tania spent CHF 950 on her holiday.  
She converted the remaining Swiss francs back into dollars.  
She paid CHF 10 to make the exchange.

Calculate the amount, in dollars, Tania received.

Answer(c) \$ ..... [3]

- 1** Mr and Mrs Sayed and their 3 children go on holiday.  
They travel to the airport by train.

**(a)** The train departs at 16 20.

**(i)** They leave home 45 minutes before the train departs.

Find the time at which they leave home.

*Answer(a)(i)* ..... [1]

**(ii)** Write 16 20 using the 12-hour clock.

*Answer(a)(ii)* ..... [1]

**(b)** The train fare is \$24 for an adult.

The train fare for a child is  $\frac{2}{3}$  of an adult fare.

Find

**(i)** the fare for a child,

*Answer(b)(i)* \$ ..... [1]

**(ii)** the total fare for Mr and Mrs Sayed and their 3 children.

*Answer(b)(ii)* \$ ..... [2]

2 Aminata buys a business costing \$23 000.

(a) She pays part of this cost with \$12 000 of her own money.

Calculate what percentage of the \$23 000 this is.

*Answer(a)* ..... % [1]

(b) Aminata's brother gives her 32% of the remaining \$11 000.

Show that \$7 480 is still needed to buy the business.

*Answer(b)*

[2]

(c) Aminata borrows the \$7 480 at a rate of 3.5 % per year **compound** interest.

Calculate how much money she owes at the end of 3 years.

*Answer(c)* \$ ..... [3]

(d) In the first year Aminata spent \$11 000 on salaries, equipment and expenses.

$\frac{2}{5}$  of this money was spent on salaries, 0.45 of this money was spent on equipment and the remainder was for expenses.

Calculate how much of the \$11 000 was spent on

(i) salaries,

*Answer(d)(i)* \$ ..... [1]

(ii) equipment,

*Answer(d)(ii)* \$ ..... [1]

(iii) expenses.

*Answer(d)(iii)* \$ ..... [1]

(e) The three items in **part (d)** are in the ratio salaries : equipment : expenses = 0.4 : 0.45 : 0.15 .

Write this ratio in its simplest form.

*Answer(e)* ..... : ..... : ..... [2]

- 1 Caroline goes to a shop.

The shopping bill shows the items she buys.

Item	Cost (\$)
1 packet of cereal	1.20
3 bottles of water at \$0.45 each	1.35
2 cartons of milk at \$0.82 each	
4 kg of rice at \$0.90 per kg	
0.7 kg of apples at \$2.40 per kg	

- (a) Complete the shopping bill. [3]

- (b) (i) Calculate the total amount of money Caroline spends at the shop.

Answer(b)(i) \$ ..... [1]

- (ii) Caroline pays with a \$10 note.

Calculate how much change she receives.

Answer(b)(ii) \$ ..... [1]



- (c) Caroline arrived at the shop at 09 48.  
 She was in the shop for 18 minutes.  
 She then took 5 minutes to walk to a café.  
 She was in the café for 20 minutes.

(i) At what time did Caroline leave the café?

*Answer(c)(i)* ..... [2]

- (ii) Caroline then went to the library.  
 She was in the library for 45 minutes.

Work out the ratio

time in the shop : time in the library.

Give your answer in its simplest form.

*Answer(c)(ii)* ..... : ..... [2]

- (d) When Caroline left home she had \$36.50.  
 She returned home with \$12.74.

Calculate \$12.74 as a percentage of \$36.50.

*Answer(d)* ..... % [1]

---

- 5 Mark and Naomi share \$600 in the ratio Mark : Naomi = 5 : 1.

Calculate how much money Naomi receives.

Answer \$ ..... [2]

---

- 6 Calculate the area of a circle with radius 6.28 centimetres.

Answer .....  $\text{cm}^2$  [2]

---

- 7 The scale on a map is 1 : 20 000.

Calculate the actual distance between two points which are 2.7 cm apart on the map.  
Give your answer in kilometres.

Answer ..... km [2]

---

- 12 (a) Write 1738.279 correct to 1 decimal place.

Answer(a) ..... [1]

- (b) Write 28 700 in standard form.

Answer(b) ..... [1]

- (c) The mass of a ten-pin bowling ball is 7 kg to the nearest kilogram.

Write down the lower bound of the mass of the ball.

Answer(c) ..... kg [1]

- 13 Paulo invests \$3000 at a rate of 4% per year **compound** interest.

Calculate the **total** amount Paulo has after 2 years.

Give your answer correct to the nearest dollar.

Answer \$ ..... [3]

- 14 A train leaves Barcelona at 21 28 and takes 10 hours and 33 minutes to reach Paris.

- (a) Calculate the time the next day when the train arrives in Paris.

Answer(a) ..... [1]

- (b) The distance from Barcelona to Paris is 827 km.

Calculate the average speed of the train in kilometres per hour.

Answer(b) ..... km/h [3]

- 15 (a) The table shows part of a railway timetable.

Peartree Station	arrival time	12 58	13 56	14 54	15 52
	departure time	13 07	14 05	15 03	16 01

- (i) Each train waits the same number of minutes at Peartree Station.

Write down how many minutes each train waits.

*Answer(a)(i)* ..... min [1]

- (ii) Janine is at Peartree Station at 3 pm.

At what time does the next train depart?

*Answer(a)(ii)* ..... [1]

- (b) The average temperature each month in Moscow and Helsinki is recorded.  
The table shows this information from January to June.

	January	February	March	April	May	June
Temperature in Moscow (°C)	−16	−14	−8	1	8	11
Temperature in Helsinki (°C)	−9	−10	−7	−1	4	10

- (i) Find the difference in temperature between Moscow and Helsinki in **January**.

*Answer(b)(i)* ..... °C [1]

- (ii) Find the increase in temperature in Helsinki from March to June.

*Answer(b)(ii)* ..... °C [1]

- 1 One square number between 50 and 100 is also a cube number.

Write down this number.

*Answer* ..... [1]

- 
- 4 Ingrid throws a javelin a distance of 58.3 metres, correct to 1 decimal place.

Complete the statement about the distance,  $d$  metres, the javelin is thrown.

*Answer* .....  $\leq d <$  ..... [2]

---

5 Show that  $1\frac{5}{9} \div 1\frac{7}{9} = \frac{7}{8}$ .

Write down all the steps in your working.

*Answer*

- 8 A meal on a boat costs 6 euros (€) or 11.5 Brunei dollars (\$).

In which currency does the meal cost less, on a day when the exchange rate is €1 = \$1.9037?

Write down all the steps in your working.

[2]

*Answer* .....

[2]

6  $\frac{3}{5} < p < \frac{2}{3}$

Which of the following could be a value of  $p$ ?

$\frac{16}{27}$     0.67    60%     $(0.8)^2$      $\sqrt{\frac{4}{9}}$

*Answer* ..... [2]

- 7 Calculate  $324 \times 17$ .

Give your answer in standard form, correct to 3 significant figures.

*Answer* ..... [2]

- 11 The table shows the opening and closing times of a café.

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Opening time	0600	0600	0600	0600	0600	(a)	0800
Closing time	2200	2200	2200	2200	2200	2200	1300

- (a) The café is open for a total of 100 hours each week.  
Work out the opening time on Saturday.

*Answer(a)* ..... [2]

- (b) The owner decides to close the café at a later time on Sunday. This increases the **total** number of hours the café is open by 4%.  
Work out the new closing time on Sunday.

*Answer(b)* ..... [1]

- 13 (a) Rewrite this calculation with all the numbers rounded to 1 significant figure.

$$\frac{77.8}{21.9 - 3.8 \times 4.3}$$

*Answer(a)* ..... [1]

- (b) Use your answer to **part (a)** to work out an estimate for the calculation.

*Answer(b)* ..... [1]

- (c) Use your calculator to find the **actual** answer to the calculation in **part (a)**.  
Give your answer correct to 1 decimal place.

*Answer(c)* ..... [2]

---

- 14 (a) Complete the list to show all the factors of 18.

1,            2,            ..... ,            ..... ,            ..... ,            18 [2]

- (b) Write down the prime factors of 18.

*Answer(b)* ..... [1]

- (c) Write down all the multiples of 18 between 50 and 100.

*Answer(c)* ..... [1]

---



- 1 (a) Write down ten thousand and seventy three in figures.

*Answer(a)* ..... [1]

- (b) Work out  $13 + 5 \times 4 - 2$ .  
Write down all the steps of your working.

*Answer(b)* ..... [1]

- 
- 3 Write down the time and date which is 90 hours after 20 30 on May 31st.

*Answer Time* .....

*Date* ..... [2]

- 
- 5 Insert  $<$  or  $>$  or  $=$  in the spaces provided to make correct statements.

(a)  $\frac{3}{11}$  ..... 0.273 [1]

(b) 1.1 ..... 111% [1]

---

- 13 (a) Find the value of  $x$  when  $\frac{18}{24} = \frac{27}{x}$ .

Answer(a)  $x =$  ..... [1]

- (b) Show that  $\frac{2}{3} \div 1\frac{1}{6} = \frac{4}{7}$ .

Write down all the steps in your working.

Answer(b)

[2]

- 14 (a) A drinking glass contains 55 cl of water.  
Write 55 cl in litres.

Answer(a) ..... litres [1]

- (b) The mass of grain in a sack is 35 kg.  
The grain is divided equally into 140 bags.

Calculate the mass of grain in each bag.  
Give your answer in grams.

Answer(b) ..... g [2]

- 15 (a) Write 67.499 correct to the nearest integer.

Answer(a) ..... [1]

- (b) Write 0.003040506 correct to 3 significant figures.

Answer(b) ..... [1]

- (c)  $d = 56.4$ , correct to 1 decimal place.

Write down the lower bound of  $d$ .

Answer(c) ..... [1]

- 1 Mr and Mrs Clark and their three children live in the USA and take a holiday in Europe.

- (a) Mr Clark changes \$500 into euros (€) when the exchange rate is €1 = \$1.4593.

Calculate how much he receives.  
Give your answer correct to 2 decimal places.

Answer(a) € ..... [2]

- (b) Tickets for an amusement park cost €62 for an adult and €52 for a child.

Work out the cost for Mr and Mrs Clark and their three children to visit the park.

Answer(b) € ..... [3]

- (c) Mr Clark sees a notice:

<p><b>SPECIAL OFFER!</b></p> <p><b>Family ticket €200</b></p>
---

Work out €200 as a percentage of your answer to **part (b)**.

Answer(c) ..... % [1]

- (d) Mrs Clark buys 6 postcards at €0.98 each.  
She pays with a €10 note.

Calculate how much change she will receive.

*Answer(d)* € ..... [2]

- (e) Children under a height of 130 cm are not allowed on one of the rides in the park.  
Helen Clark is 50 inches tall.

Use 1 inch = 2.54 cm to show that she will not be allowed on this ride.

*Answer(e)*

[1]

---

6 (a) 103 112 125 132 144 159 161

From the list above, write down

(i) a square number,

*Answer(a)(i)* ..... [1]

(ii) a cube number,

*Answer(a)(ii)* ..... [1]

(iii) a prime number,

*Answer(a)(iii)* ..... [1]

(iv) an odd number which is a multiple of 3.

*Answer(a)(iv)* ..... [1]

(b) Write 88 as a product of prime numbers.

*Answer(b)* ..... [2]

(c) Find the highest common factor of 72 and 96.

*Answer(c)* ..... [2]

(d) Find the lowest common multiple of 15 and 20.

*Answer(d)* ..... [2]

- 1** Falla buys 3000 square metres of land for a house and garden.  
The garden is divided into areas for flowers, vegetables and grass.

He divides the land in the following ratio.

$$\text{house} : \text{flowers} : \text{vegetables} : \text{grass} = 4 : 7 : 8 : 5$$

- (a) (i)** Show that the area of land used for flowers is  $875 \text{ m}^2$ .

*Answer(a)(i)*

[2]

- (ii)** Calculate the area of land used for the house.

*Answer(a)(ii)* .....  $\text{m}^2$  [2]

- (b)** Write down the fraction of land used for vegetables.  
Give your answer in its simplest form.

*Answer(b)* ..... [2]

- (c) During the first year Falla plants flowers in 64% of the  $875 \text{ m}^2$ .

Calculate the area he plants with flowers.

*Answer(c)* .....  $\text{m}^2$  [2]

- (d) Falla sells some of the vegetables he grows.  
These vegetables cost \$85 to grow.  
He sells them for \$105.

Calculate his percentage profit.

*Answer(d)* ..... % [3]

- (e) To buy the land Falla borrowed \$5000 at a rate of 6.4% **compound** interest for 2 years.

Calculate the **total** amount he pays back at the end of the 2 years.  
Give your answer correct to the nearest dollar.

*Answer(e)* \$ ..... [3]

---

- 1 At a theatre, adult tickets cost \$5 each and child tickets cost \$3 each.

- (a) Find the total cost of 110 adult tickets and 85 child tickets.

Answer(a) \$ ..... [2]

- (b) The total cost of some tickets is \$750.  
There are 120 adult tickets.

Work out the number of child tickets.

Answer(b) ..... [2]

- (c) The ratio of the **number** of adults to the **number** of children during one performance is

adults : children = 3 : 2.

- (i) The total number of adults and children in the theatre is 150.

Find the number of adults in the theatre.

Answer(c)(i) ..... [2]

- (ii) For this performance, find the ratio **total cost** of adult tickets : **total cost** of child tickets.  
Give your answer in its simplest form.

Answer(c)(ii) ..... : ..... [3]

- (d) The \$5 cost of an adult ticket is increased by 30%.

Calculate the new cost of an adult ticket.

Answer(d) \$ ..... [2]

- (e) The cost of a child ticket is reduced from \$3 to \$2.70.

Calculate the percentage decrease in the cost of a child ticket.

Answer(e) ..... % [3]



- 1 On Monday the temperature was  $-3^{\circ}\text{C}$ .  
On Tuesday the temperature fell by  $5^{\circ}\text{C}$ .

Write down the temperature on Tuesday.

Answer .....  $^{\circ}\text{C}$  [1]

---

- 2 Write 0.00387 in standard form.

Answer ..... [1]

---

- 4 On a map, a straight section of a canal is 3.5 cm long.  
The scale of the map is 1 cm to 5 km.

Calculate the actual length of this straight section.

Answer ..... km [1]

---

- 5 Sophie invests \$450 at a rate of 1.5% per year **simple** interest.

Calculate the interest she earns after 8 years.

Answer \$ ..... [2]

---

- 7 A box is 12 cm high, correct to the nearest centimetre.

Complete the statement about the height,  $h$  cm, of the box.

*Answer* .....  $\leq h <$  ..... [2]

---

- 8 The metal used to make a coin is a mixture of steel and copper.

The ratio mass of steel : mass of copper is 108 : 7.

The coin has a total mass of 230 milligrams.

Calculate the mass of copper in this coin.

*Answer* ..... milligrams [2]

---

- 10** Use your calculator to find the value of  $\sqrt{25.63}$  .

Write down your answer

- (a)** as it appears on your calculator,

*Answer(a)* ..... [1]

- (b)** correct to 4 significant figures.

*Answer(b)* ..... [1]

---

- 15** A tourist changes \$900 to euros (€) when the exchange rate is €1 = \$1.356.

Calculate the amount he receives.

Give your answer correct to 2 decimal places.

*Answer €* ..... [3]

---

- 16 (a) Write down all the common factors of 30 and 42.

*Answer(a)* ..... [2]

- (b) Write down the smallest number which is a multiple of both 12 and 18.

*Answer(b)* ..... [2]

---

19 In this question, **you must show all the steps in your working.**

Without using a calculator, find the value of

(a)  $1\frac{1}{3} \div 2\frac{4}{5}$ ,

*Answer(a)* ..... [3]

(b)  $\frac{13}{15} + \frac{3}{5}$ .

Give your answer as a mixed number.

*Answer(b)* ..... [3]

---

- 3 Francis recorded a temperature of  $-4^{\circ}\text{C}$  on Sunday.  
By Monday it had gone down by  $3^{\circ}\text{C}$ .

(a) Find the temperature on Monday.

Answer(a) .....  $^{\circ}\text{C}$  [1]

(b) On Tuesday the temperature was  $-1^{\circ}\text{C}$ .

Find the change in temperature between Monday and Tuesday.

Answer(b) .....  $^{\circ}\text{C}$  [1]

---

- 4 The distance from the Sun to the planet Saturn is 1 429 400 000 kilometres.

Write this distance in standard form, correct to 3 significant figures.

Answer ..... km [2]

---

- 5 A factory makes doors that are each 900 millimetres wide, correct to the nearest millimetre.

Complete the statement about the width,  $w$  millimetres, of each door.

Answer .....  $\leq w <$  ..... [2]

---

13 Dominic, Esther, Flora and Galena shared a pizza.

- (a) Dominic ate  $\frac{1}{5}$  of the pizza and Esther ate  $\frac{2}{7}$  of the pizza.

Show that  $\frac{18}{35}$  of the pizza remained.

Do not use your calculator and show all your working.

*Answer (a)*

[2]

- (b) Flora ate  $\frac{2}{3}$  of the **pizza that remained**.

Find the fraction of the pizza that was left for Galena.

*Answer(b)* ..... [2]

14

$$\frac{9.6 \times 7.8 - 0.53 \times 86}{4.95}$$

- (a) (i) Rewrite this calculation with each number written correct to 1 significant figure.

*Answer(a)(i)*

[1]

- (ii) Work out the answer to your calculation in **part(a)(i)**.  
Do not use a calculator and show all your working.

*Answer(a)(ii)* ..... [2]

- (b) Use your calculator to work out the correct answer to the original calculation.

*Answer(b)* ..... [1]

- 15 Amiria invests \$200 for 2 years at 3% per year **compound** interest.

Calculate the total amount Amiria has at the end of the two years.

Answer \$ ..... [3]

---

- 17 Insert brackets to make each statement correct.

(a)  $7 + 2 \times 9 = 81$  [1]

(b)  $36 \div 6 \div 2 = 12$  [1]

(c)  $5 \times 3 + 6 \times 2 = 90$  [1]

---

- 2 Write down all the square numbers which are factors of 100.

Answer ..... [2]

---

- 4 In a desert the temperature at noon was  $38^{\circ}\text{C}$ .  
At midnight the temperature was  $-3^{\circ}\text{C}$ .

- (a) Find the change in temperature between noon and midnight.

Answer(a) .....  $^{\circ}\text{C}$  [1]

- (b) At 02 00 the temperature was  $4^{\circ}\text{C}$  below the midnight temperature.

Write down the temperature at 02 00.

Answer(b) .....  $^{\circ}\text{C}$  [1]

---



- 10** Change 18.75% into a fraction.

Write your answer in its lowest terms.

*Answer* ..... [2]

- 12** Simplify  $\left(1\frac{1}{2}\right)^{-3}$ .

Give your answer as a fraction.

*Answer* ..... [2]

**14**

17

27

$\sqrt{17}$

0.294

$\frac{5}{17}$

From the list of numbers, write down

- (a)** a prime number,

*Answer(a)* ..... [1]

- (b)** an irrational number,

*Answer(b)* ..... [1]

- (c)** the smallest number.

*Answer(c)* ..... [1]

1 (a) Write down

(i) a multiple of 7 between 80 and 90,

*Answer(a)(i)* ..... [1]

(ii) a prime number between 30 and 40,

*Answer(a)(ii)* ..... [1]

(iii) a square number between 120 and 130,

*Answer(a)(iii)* ..... [1]

(iv) a cube number between 100 and 200.

*Answer(a)(iv)* ..... [1]

(b) Write the following numbers in order, starting with the smallest.

$$\sqrt{0.31}$$

$$\frac{5}{9}$$

55%

*Answer(b)*                      <                      <                      [2]

---

5 A shopkeeper buys cheese for \$3.75 per kilogram and sells it for \$5.10 per kilogram.

(a) Calculate his percentage profit.

Answer(a) ..... % [3]

(b) Mrs Garcia buys cheese from the shopkeeper.

Calculate the number of **grams** of cheese she can buy for \$2.04 .

Answer(b) ..... g [2]

(c) The shopkeeper sells 7 kg of cheese and has 3 kg left.

(i) He reduces his selling price of \$5.10 per kilogram by 70%.

Calculate the reduced price.

Answer(c)(i) \$ ..... [2]

(ii) He sells the 3kg of cheese at the reduced price.

Calculate the **total** amount of money he receives by selling all the cheese.

Answer(c)(ii) \$ ..... [2]

**1** A drink consists of water and fruit juice.

**(a)** 24% of the drink is water.

Show that there is a total of  $760 \text{ cm}^3$  of fruit juice in one litre of the drink.

*Answer(a)*

[2]

**(b)** What fraction of one litre of the drink is fruit juice?

Give your answer in its simplest form.

*Answer(b)* ..... [2]

**(c)** The  $760 \text{ cm}^3$  of fruit juice in one litre of the drink is made from apple, mango and peach in the following ratio.

Apple : Mango : Peach = 6 : 15 : 17

Calculate the amount of apple juice.

*Answer(c)* .....  $\text{cm}^3$  [2]

**(d)** A shopkeeper buys bottles of the drink for 65 cents each.  
He sells them for 80 cents each.

Calculate the percentage profit he makes on each bottle he sells.

*Answer(d)* ..... % [3]

2 (a) (i)  $f \times g = 90$

$f$  and  $g$  are both integers **greater than 1**.

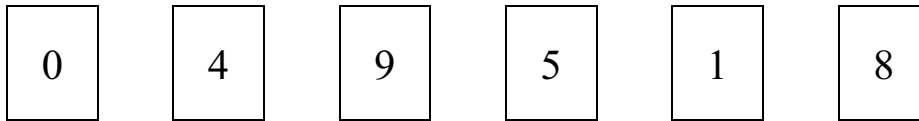
Write down one possible pair of values of  $f$  and  $g$ .

Answer(a)(i)  $f = \dots\dots\dots$  and  $g = \dots\dots\dots$  [1]

(ii) Find all the prime factors of 90.

Answer(a)(ii)  $\dots\dots\dots$  [3]

(b) Six number cards are shown below.



One or more of the cards are chosen to make different numbers.

For example 







 makes the number 59.

Choosing a card or cards, write down

(i) a 2-digit odd number less than 40,

Answer(b)(i)  $\dots\dots\dots$  [1]

(ii) the largest 3-digit even number,

Answer(b)(ii)  $\dots\dots\dots$  [1]

(iii) a 2-digit square number greater than 50,

Answer(b)(iii)  $\dots\dots\dots$  [1]

(iv) a cube number,

Answer(b)(iv)  $\dots\dots\dots$  [1]

(v) a 2-digit multiple of 13,

Answer(b)(v)  $\dots\dots\dots$  [1]

(vi) the cube root of 64,

Answer(b)(vi)  $\dots\dots\dots$  [1]

(vii) a prime number between 100 and 120.

Answer(b)(vii)  $\dots\dots\dots$  [1]

2 Eduardo lives in Argentina and travels to Uruguay for a holiday.

- (a) His flight from Buenos Aires to Montevideo takes 55 minutes.  
The plane departs at 17 35.

(i) Write down the arrival time.

*Answer(a)(i)* ..... [1]

- (ii) The distance between Buenos Aires and Montevideo is 230 km.

Calculate the average speed of the plane.

*Answer(a)(ii)* ..... km/h [3]

- (b) At the airport, Eduardo changed some Argentine pesos (ARS).  
He received 9121 Uruguay pesos (UYU).

(i) The exchange rate was ARS 1 = UYU 6.515.

Calculate how many Argentine pesos Eduardo changed.

*Answer(b)(i) ARS* ..... [2]

- (ii) Eduardo spent 1890 Uruguay pesos on meals.

Calculate this as a percentage of the UYU 9121.

*Answer(b)(ii)* ..... % [1]

- (iii) At the end of his holiday, Eduardo has UYU 610 remaining.  
He changes this into Argentine pesos when the exchange rate is UYU 1 = ARS 0.149.

Calculate how much Eduardo receives in Argentine pesos.  
Give your answer to the nearest whole number.

*Answer(b)(iii) ARS* ..... [2]

- 1 A ferry to Crete leaves at 07 30.  
The journey takes 2 hours and 48 minutes.  
Work out the time when the ferry arrives in Crete.

Answer ..... [1]

---

- 2 (a) Write the following in order, starting with the smallest.

$$0.43 \quad \frac{4}{9} \quad 41\%$$

Answer(a) ..... < ..... < ..... [1]

- (b) Only **one** of the following statements is correct.

$$\sin 30^\circ \neq 0.5$$

$$4^2 > 16$$

$$0.3 < \frac{1}{3}$$

Put a ring around the **correct** statement. [1]

---

- 16 Daniel invested \$2500 for 2 years at 5.5% per year **compound** interest.

Calculate how much interest he received.

Answer \$ ..... [3]

---

- 4 1 litre of apple juice is poured into 3 glasses.

The first glass contains  $\frac{2}{5}$  litre.

The second glass contains  $\frac{1}{4}$  litre.

What fraction of a litre does the third glass contain?

Show all your working clearly.

Answer ..... [2]

---

- 5 A plane from Hong Kong to New Zealand leaves at 18 10 on Monday.

The time in New Zealand is 4 hours ahead of the time in Hong Kong.

- (a) Write down the time in New Zealand when the plane leaves Hong Kong.

Answer(a) ..... [1]

- (b) The plane arrives in New Zealand at 09 45 on Tuesday.

How long, in hours and minutes, does the journey take?

Answer(b) ..... h ..... min [1]

---



- 6 Alphonse changed 400 Brazilian reals into South African Rand.  
The exchange rate was 1 Brazilian real = 4.76 South African Rand (R).

How much did he receive?

Answer R ..... [2]

---

- 7 Joe measured the diameter of a tennis ball correct to the nearest millimetre.  
The upper bound of his measurement was 6.75 centimetres.

Write down, **in millimetres**, the lower bound of his measurement.

Answer ..... mm [2]

---

- 13 (a) Work out  $\frac{0.68 + 2.57 \times 1.76}{63}$ .

Write down all the figures from your calculator display.

Answer(a) ..... [1]

- (b) Write your answer to **part (a)** in standard form correct to 3 significant figures.

Answer(b) ..... [2]

---

4 < = >

For each part, choose a symbol from those above to make a correct statement.

(a)  $\frac{5}{9}$  ..... 0.55 [1]

(b) 66% .....  $\frac{2}{3}$  [1]

**5** In a sale, the price of a boat was reduced from \$21 000 to \$16 800.

Calculate the reduction as a percentage of the original price.

*Answer* ..... % [2]

- 7 Mrs Duval makes one litre of ice cream.  
 She eats  $\frac{1}{8}$  litre and her children eat  $\frac{3}{5}$  litre.

Without using your calculator, find what fraction of a litre of ice cream is left.  
 Show all your working clearly.

*Answer* ..... [2]

---

- 8 (a) Use your calculator to work out  $27.4 \times (3.28 + 1.6 \times 9.8)$ .

Write down all the figures from your calculator display.

*Answer(a)* ..... [1]

- (b) Write your answer to **part (a)** correct to 3 significant figures.

*Answer(b)* ..... [1]

---

- 9 Calculate the area of a circle of radius 3.75 cm.

*Answer* .....  $\text{cm}^2$  [2]

---

**1** The population of a village is 2250.

- (a)** 32% of the population are children.  
Calculate the number of children in the village.

*Answer(a)* ..... [2]

**(b)** 360 people in the village are over the age of 60.

- (i)** For these 360 people, the ratio of men to women is 2 : 7.  
Calculate how many men are over the age of 60.

*Answer(b)(i)* ..... [2]

**(ii)** Write 360 as a fraction of 2250 in its lowest terms.

*Answer(b)(ii)* ..... [2]

- (c)** The population of 2250 is expected to increase by 18% next year.  
Calculate the expected population next year.

*Answer(c)* ..... [3]

**(d)** Write the number 2250 in standard form.

*Answer(d)* ..... [1]

- (e)** Another village has a population of 1770, correct to the nearest ten.  
Write down the lower bound for the population of this village.

*Answer(e)* ..... [1]

**8 In this question give all your answers to 2 decimal places.**

- (a) Ankuri lends her brother \$275 for 4 years at a rate of 3.6% per year **simple** interest.  
Calculate the total amount her brother owes after 4 years.

*Answer(a)* \$ ..... [3]

- (b) Monesh invests \$650 in a bank which pays 4% per year **compound** interest.  
Calculate the amount Monesh will have after 2 years.

*Answer(b)* \$ ..... [3]

- (c) Theresa and Ian have 400 euros (€) each.

- (i) Theresa changes her €400 for pounds (£) when the exchange rate is €1 = £ 0.7857.  
Calculate the amount she receives.

*Answer(c)(i)* £ ..... [2]

- (ii) Ian changes his €400 for dollars (\$) when the exchange rate is \$1 = € 0.6374.  
Calculate the amount he receives.

*Answer(c)(ii)* \$ ..... [3]

- 1 (a) (i) 1, 2 and 36 are factors of 36.

Write down all the other factors of 36.

*Answer(a)(i)* ..... [2]

- (ii) 1 and 2 are common factors of 36 and 90.

Write down two more common factors of 36 and 90.

*Answer(a)(ii)* ..... [2]

- (b) Write down all the square numbers between 20 and 50.

*Answer(b)* ..... [3]

- (c)  $p$  and  $q$  are prime numbers.

$$p^3 \times q = 56$$

Find  $p$  and  $q$ .

*Answer(c)*  $p =$  .....

$q =$  ..... [2]

- 2 Francis earns \$150 per week.  
He has \$132 left after he pays his tax.

(a) Calculate what percentage of his \$150 he pays in tax.

*Answer(a)* ..... % [3]

(b) He divides the \$132 between expenses, savings and family in the ratio

Expenses : Savings : Family = 15 : 7 : 11.

Calculate his expenses.

*Answer(b)* \$ ..... [3]

(c) His rent is \$24 per week.

What fraction of the \$132 is this?

Give your answer as a fraction in its simplest form.

*Answer(c)* ..... [2]

(d) His earnings of \$150 per week increase by 8%.

Calculate his new earnings.

*Answer(d)* \$ ..... [2]

1 A bookshop sold a total of 2750 books in January.

- (a) The ratio hardback books sold : paperback books sold was 4 : 7.  
Calculate how many paperback books were sold.

Answer(a) ..... [2]

- (b) 24% of the 2750 books sold were non-fiction.  
Calculate how many non-fiction books were sold.

Answer(b) ..... [2]

- (c) 330 cookery books were sold.  
Write 330 as a fraction of 2750 in its lowest terms.

Answer(c) ..... [2]

- (d) In February, the bookshop sold 14% more than the 2750 books sold in January.  
Calculate the number of books sold in February.

Answer(d) ..... [3]

- (e) The total value of the books sold in January was \$9480 correct to the nearest 10 dollars.  
Write down the lower bound for this amount.

Answer(e) \$ ..... [1]

- (f) 35000 books were sold in a year.  
Write this number in standard form.

Answer(f) ..... [1]



2 (a) Write down

(i) five numbers which are multiples of 7,

*Answer(a)(i)* ..... , ..... , ..... , ..... , ..... [2]

(ii) two common multiples of 4 and 7.

*Answer(a)(ii)* ..... and ..... [2]

(b) 10 12 13 16 17 23 25 39

From the list above, write down

(i) a square number that is also an odd number,

*Answer(b)(i)* ..... [1]

(ii) a prime number that is one more than a square number.

*Answer(b)(ii)* ..... [1]

(c)  $n$  is an integer and  $n^3$  is between 60 and 70.  
Find the value of  $n$ .

*Answer(c)*  $n =$  ..... [1]

(d)  $k$  and  $m$  are prime numbers.

$$k^2 + m = 23$$

Find  $k$  and  $m$ .

*Answer(d)*  $k =$  .....

$m =$  ..... [2]

**10 In this question give all your answers correct to 2 decimal places.**

**(a)** A bank has an exchange rate of \$1 = € 0.6513.

- (i)** Jonathan changes \$500 into euros (€).  
Calculate the amount Jonathan receives.

*Answer(a)(i)* € ..... [2]

- (ii)** Arika changes €300 into dollars.  
Calculate the amount Arika receives.

*Answer(a)(ii)* \$ ..... [3]

- (b)** Dania borrows \$325 for 2 years at a rate of 3.8% per year **simple** interest.  
Calculate the total amount Dania owes after 2 years.

*Answer(b)* \$ ..... [3]

- (c)** Lee borrows \$550 for 2 years at a rate of 6% per year **compound** interest.  
Calculate the total amount Lee owes after 2 years.

*Answer(c)* \$ ..... [3]

- 1 Insert one pair of brackets to make the following equation correct.

$$2 \times 8 - 5 - 4 = 15$$

[1]

- 
- 2 Write the following numbers in order starting with the smallest.

$$\frac{2}{7} \quad 0.283 \quad 28\%$$

*Answer* ..... < ..... < ..... [1]

- 
- 3 Find the volume of a cube with sides of 2.3 cm.

*Answer* ..... cm<sup>3</sup> [1]

- 5 The number of spectators,  $N$ , at a football match is 16 000, correct to the nearest thousand. Complete the statement for  $N$  in the answer space.

Answer .....  $\leq N <$  ..... [2]

---

- 6 Work out the value of  $3\frac{3}{4} \times 1\frac{1}{7}$ .

**Show all your working** and leave your answer as a fraction.

Answer ..... [2]

---

- 16 As the earth rotates, a point on the equator moves round at a speed of 1669.8 kilometres/hour.

(a) Write down this number in standard form, correct to 3 significant figures.

Answer(a) ..... [2]

(b) Change 1669.8 kilometres/hour into metres/second.

Answer(b) ..... m/s [2]

---

8

4

$$\sqrt{8}$$
$$\sqrt{25}$$
$$\frac{5}{2}$$

0.3333

From the list above, write down

(a) a prime number,

*Answer(a)* ..... [1]

(b) an irrational number.

*Answer(b)* ..... [1]

**9** A train sets off at 11 53 on a journey to Mumbai. The journey takes 2 hours 30 minutes.

**(a)** Write down the time when the train arrives in Mumbai.

*Answer(a)* [1]

**(b)** The distance to Mumbai is 235 kilometres. Calculate the average speed of the train.

*Answer(b)* ..... km/h [2]

- 3 (a) Bruce mixes blue and yellow paint to make green paint.  
He uses blue and yellow paint in the ratio blue : yellow = 7 : 3.

- (i) He makes 15 litres of green paint.  
How many litres of yellow paint does he use?

Answer(a)(i) ..... litres [2]

- (ii) He buys the yellow paint in tins. Each tin contains 2 litres of paint.  
Write down the number of tins of yellow paint he buys.

Answer(a)(ii) ..... [1]

- (b) Tins of red paint cost \$9.25 each.  
In a sale, the shop reduces the price by 12%.

- (i) Calculate the sale price.

Answer(b)(i) \$ ..... [3]

- (ii) Bruce buys 4 tins of red paint in the sale.  
How much does he pay?

Answer(b)(ii) \$ ..... [1]

- (iii) Before the sale, he bought 5 tins at \$9.25 each.  
Calculate how much he paid for these 5 tins.

Answer(b)(iii) \$ ..... [1]

- (iv) Use **parts (b)(ii) and (b) (iii)** to find the average (mean) price he paid for a tin of red paint.

Answer(b)(iv) \$ ..... [3]

1                     $\geq$                      $<$                      $>$                      $=$                      $\leq$

Choose one of the above symbols to make a correct statement in the answer space.

*Answer*                    0.4 .....  $\frac{4}{9}$                     [1]

---

2    (a) Calculate  $\frac{0.0763}{1.85 + 4.7 \times 8}$ .

*Answer(a)* ..... [1]

(b) Write 0.0763 in standard form.

*Answer(b)* ..... [1]

---

3    How many glasses, each holding  $200 \text{ cm}^3$ , can be filled completely from a full 4.5 litre bottle of water?

*Answer* ..... [2]

---

- 9 In 2007 Klaus paid 350 euros (€) for a flight from Berlin to Nairobi.

The return flight from Nairobi to Berlin cost him 30 700 Kenyan Shillings (KES).

The exchange rate at the time of the return flight was €1 = 79.6 KES.

Calculate the difference, in euros, between the costs of the two flights.  
Give your answer correct to 2 decimal places.

Answer € ..... [2]

---

- 11 (a) Find the lowest common multiple of 7 and 9.

Answer(a) ..... [1]

- (b) Without using a calculator, work out  $\frac{8}{9} - \frac{5}{7}$ , leaving your answer as a fraction.  
You must show all your working.

Answer(b) ..... [2]

---



**14**  $x$  is an integer between 60 and 90.

Write down the value of  $x$  when it is

**(a)** an odd square number,

*Answer(a)*  $x =$  ..... [1]

**(b)**  $4^3$ ,

*Answer(b)*  $x =$  ..... [1]

**(c)** a multiple of 29,

*Answer(c)*  $x =$  ..... [1]

**(d)** a prime factor of 146.

*Answer(d)*  $x =$  ..... [1]

---

- 1 (a) Roberto owns 6000 square metres of land.  
He divides it between himself and his two children, Stefano and Tania, in the ratio

$$\text{Roberto} : \text{Stefano} : \text{Tania} = 7 : 5 : 3.$$

- (i) Show that Roberto now has 2800 square metres of land.  
*Answer(a)(i)*

[2]

- (ii) Calculate the area of land that Stefano and Tania each have.

*Answer(a)(ii)* Stefano ..... m<sup>2</sup>

Tania ..... m<sup>2</sup> [2]

- (b) Roberto receives a rent of \$1.40 per month for each square metre of his land.

- (i) Calculate the rent he receives in **one year** from his 2800 square metres of land.

*Answer(b)(i)* \$ ..... [2]

- (ii) Roberto uses  $\frac{3}{5}$  of this amount to buy more land.

Calculate the amount that he uses to buy more land.

*Answer(b)(ii)* \$ ..... [2]

- (c) Stefano builds a house on his land.  
He borrows \$5000 from a bank at 8% per year **simple** interest.  
Find the total amount of interest he will have paid at the end of 3 years.

Answer(c) \$ ..... [2]

- (d) Tania sells her land for \$12 000.  
She invests the money for 3 years at 6% per year **compound** interest.  
Calculate the total amount of money she will have at the end of the 3 years.  
Give your answer to the nearest dollar.

Answer(d) \$ ..... [4]

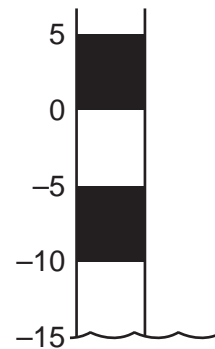
---

- 1 Write down a multiple of 4 and 14 which is less than 30.

Answer ..... [1]

---

- 3 On 1st August the level of water in a lake was  $-15$  metres.  
A month later the level was 2 metres higher.  
Write down the new level of water.



Answer ..... m [1]

---

- 4 The area of a square is  $42.25 \text{ cm}^2$ .  
Work out the length of one side of the square.

Answer ..... cm [1]

---

- 6 The scale on a map is 1:250000.  
A road is 4.6 centimetres long on the map.  
Calculate the actual length of the road in kilometres.

Answer ..... km [2]

---

- 7 > = <

Choose one of the symbols above to complete each of the following statements.

(a)  $74\% \dots\dots\dots \frac{5}{7}$  [1]

(b)  $\left(\frac{1}{2}\right)^{-3} \dots\dots\dots 8$  [1]

---

- 8 Juanita changed \$20 into euros . The exchange rate was €=\$1.2685.  
How many euros did she receive?  
Give your answer correct to 2 decimal places.

Answer € ..... [2]

---

- 14 **Without using your calculator**, work out  $\frac{5}{8} \div 3\frac{3}{4}$ .

Give your answer as a fraction in its lowest terms.  
You must show **all** your working.

Answer

---

- 10 The River Nile is 6700 kilometres long, correct to the nearest hundred kilometres.  
Complete the statement about the length,  $L$  kilometres, of the River Nile.

Answer .....  $< L$  , ..... [3]  
[2]

---

11

The table below is part of a bus timetable

City centre	11 15	12 30	13 10	13 40
Heatherton	11 25	12 40	13 20	13 50
Rykneld	11 29	12 44	13 24	13 54

- (a) The 11 15 bus left the City centre on time and arrived at Rykneld 2 minutes early.  
How many minutes did it take to reach Rykneld?

Answer(a) ..... min [1]

- (b) Paulo walked to the bus stop at Heatherton and arrived at 12 56.  
The next bus arrived on time.  
How many minutes did Paulo wait for the bus?

Answer(b) ..... min [1]

---

13 Write 0.00578

- (a) in standard form,

Answer(a) ..... [1]

- (b) correct to 2 significant figures,

Answer(b) ..... [1]

- (c) correct to 2 decimal places.

Answer(c) ..... [1]

---

- 1 Aida, Bernado and Cristiano need \$30 000 to start a business.

- (a) (i) They borrow  $\frac{2}{5}$  of this amount.  
Show that they still need \$18 000.

*Answer (a)(i)*

[1]

- (ii) They provide the \$18 000 themselves in the ratio

$$\text{Aida : Bernado : Cristiano} = 5 : 4 : 3.$$

Calculate the amount each of them provides.

*Answer(a)(ii)*Aida \$ .....

Bernado \$ .....

Cristiano \$ ..... [3]

- (b) (i) Office equipment costs 35 % of the \$30 000.  
Calculate the cost of the equipment.

*Answer(b)(i)*\$ ..... [2]

- (ii) Office expenses cost another \$6500.  
Write this as a fraction of \$30 000.  
Give your answer in its lowest terms.

*Answer(b)(ii)* ..... [2]

- (iii) How much remains of the \$30 000 now?

*Answer(b)(iii)*\$ ..... [1]

- (c) They invest \$12 500.  
After one year this has increased to \$15 500.  
Calculate this percentage increase.

*Answer(c)* ..... % [3]

- 1 Work out the value of  $\frac{11+4 \times 7}{3}$ .

*Answer* ..... [1]

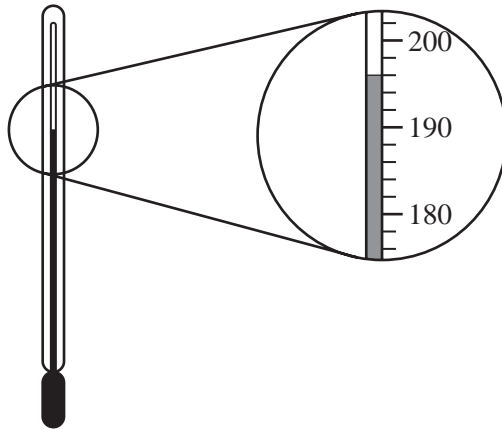
- 2 A train leaves Paris at 10 56 and arrives in Marseille at 13 12.

How long does the journey take?

Give your answer in hours and minutes.

*Answer* ..... h ..... min [1]

3



The diagram above shows part of a thermometer which measures the temperature in °C inside an oven.

What is the temperature in the oven?

*Answer* ..... °C [1]



- 4 When Jon opened a packet containing 30 biscuits, he found that 3 biscuits were broken.

What percentage of the biscuits were broken?

*Answer* ..... % [1]

---

- 5 Write the following in order, starting with the smallest.

0.35    33%     $\frac{1}{3}$

*Answer* ..... < ..... < ..... [1]

---

- 6 In May, the average temperature in Kiev was 12 °C.

In February, the average temperature was 26 °C lower than in May.

What was the average temperature in February?

*Answer* ..... °C [1]

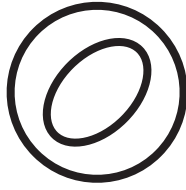
---

- 7 Write 0.00362 in standard form.

*Answer* ..... [1]

---

8



For the diagram above, write down

(a) the number of lines of symmetry,

Answer(a) ..... [1]

(b) the order of rotational symmetry.

Answer(b) ..... [1]

- 9 Rehana pays \$284 in tax.  
This is  $\frac{2}{9}$  of the money she earns.  
How much does Rehana earn?

Answer \$ ..... [2]

- 10 The height,  $h$  metres, of a telegraph pole is 12 metres correct to the nearest metre.

Complete the statement about the value of  $h$ .

Answer .....  $\leq h <$  ..... [2]

- 11 A packet of sweets costs \$2.45.

Felipe and his brother share the cost in the ratio 4 : 3.

How much does Felipe pay?

Answer \$ ..... [2]

- 14** Find the circumference of a circle of radius 5.7 cm.  
Write down your answer

**(a)** exactly as it appears on your calculator,

*Answer(a)* ..... cm [1]

**(b)** correct to the nearest centimetre.

*Answer(b)* ..... cm [1]

---

20

$\sqrt{4} \quad \sqrt{14} \quad \sqrt{36} \quad \sqrt{64} \quad \sqrt{81} \quad \sqrt{100}$

From the list above, write down

(a) a prime number,

*Answer(a)* ..... [1]

(b) a factor of 27,

*Answer(b)* ..... [1]

(c) a multiple of 4,

*Answer(c)* ..... [1]

(d) an irrational number.

*Answer(d)* ..... [1]

---

- 23 Nicolas needs to borrow \$4000 for 3 years. The bank offers him a choice:

Offer A	Offer B
Interest Rate 8.5% per year	Interest Rate 8% per year
Pay the interest at the end of each year	Pay all the interest at the end of three years

Nicolas recognises that offer A is simple interest and offer B is compound interest.

- (a) If he takes offer A, what is the total amount of interest he will pay?

Answer(a) \$ ..... [2]

- (b) If he takes offer B, how much **interest** will he pay?  
Give your answer correct to 2 decimal places.

Answer(b) \$ ..... [3]

- 14 (a) Alex changed \$250 into euros (€) when the rate was €1 = \$1.19886.

How many euros did he receive?

Answer(a) € ..... [2]

- (b) Write 1.19886 correct to 3 significant figures.

Answer(b) ..... [1]

- 1 Alphonse, his wife and child fly from Madrid to the Olympic Games in Beijing.  
The adult plane fare is 450 euros.  
The child fare is 68% of the adult fare.

(a) Show that the total plane fare for the family is 1206 euros. Show all your working clearly.

*Answer (a)*

[3]

(b) The ratio of the money spent on plane fares : accommodation : tickets = 6 : 5 : 3.

Calculate the **total** cost.

*Answer(b)* ..... euros [3]

(c) Alphonse changes 500 euros into Chinese Yuan at a rate of 1 euro = 9.91 Chinese Yuan.

How many Chinese Yuan does he receive?

*Answer(c)* ..... Yuan [2]

(d) Their plane leaves Madrid at 05 45. The journey takes 11 hours 35 minutes.  
Beijing time is 6 hours ahead of Madrid time.

Find the time in Beijing when they arrive.

*Answer(d)* ..... [2]

- 1 On a winter's day in Vienna the maximum temperature was  $-2^{\circ}\text{C}$ .  
The minimum temperature was  $11^{\circ}\text{C}$  lower than this.  
Write down the minimum temperature.

Answer .....  $^{\circ}\text{C}$  [1]

---

- 2 Chris and Roberto share \$35 in the ratio 5:2.  
Calculate how much Roberto receives.

Answer \$ ..... [2]

---

- 7 The distance,  $d$  kilometres, between Windhoek and Cape Town is 1300 km, correct to the nearest 100 kilometres.  
Complete the statement about the value of  $d$ .

Answer .....  $\leq d <$  ..... [2]

---

- 4 In 2005, a toy cost 52.50 reals in Brazil.  
In Argentina, 1 peso = 0.875 reals.  
Work out the cost of the toy in pesos.

Answer ..... pesos [2]

---

- 9 (a) Write in the missing number.  $\frac{5}{6} = \frac{\dots}{18}$

- (b) Without using your calculator and writing down all your working, show that

[1]

$$1\frac{2}{9} - \frac{5}{6} = \frac{7}{18}.$$

*Answer(b)*

[2]

- 
- 13 A school has 240 students.

- (a) There are 131 girls.  
What percentage of the students are girls?

*Answer(a)* ..... [2]

- (b) One day 6.25% of the 240 students are absent.  
Work out the number of students who are absent.

*Answer(b)* ..... [2]



- 16 (a) (i) Write 17 598 correct to 2 significant figures.

Answer(a)(i) ..... [1]

- (ii) Write your answer to **part (a)(i)** in standard form.

Answer(a)(ii) ..... [1]

- (b) Write  $5.649 \times 10^{-2}$  as a decimal, correct to 3 decimal places.

Answer(b) ..... [2]

---

- 17 (a) Alex invests \$200 for 2 years at 4.05% per year **simple** interest.  
Calculate how much **interest** Alex receives.

Answer(a) \$ ..... [2]

- (b) Bobbie invests \$200 for 2 years at 4% per year **compound** interest.  
Calculate how much **interest** Bobbie receives.  
Give your answer to 2 decimal places.

Answer(b) \$ ..... [2]

---

- 1 On a winter's day in Lesotho the maximum temperature was  $-3^{\circ}\text{C}$ .  
The minimum temperature was  $9^{\circ}\text{C}$  lower than this.  
Write down the minimum temperature.

Answer .....  $^{\circ}\text{C}$  [1]

---

- 2 Paulo and Maria share \$45 in the ratio 4:5.  
Calculate how much Maria receives.

Answer \$ ..... [2]

---

- 4 In 2006, a toy cost 70.80 reals in Brazil.  
In Argentina, 1 peso = 0.885 reals.  
Work out the cost of the toy in pesos.

Answer ..... pesos [2]

---

- 16 (a) (i) Write 15 583 correct to 2 significant figures.

Answer(a)(i) ..... [1]

- (ii) Write your answer to **part (a)(i)** in standard form.

Answer(a)(ii) ..... [1]

- (b) Write  $3.718 \times 10^{-3}$  as a decimal, correct to 4 decimal places.

Answer(b) ..... [2]

---

- 17 (a) Abdul invests \$400 for 2 years at 6.05% per year **simple** interest.  
Calculate how much **interest** Abdul receives.

Answer(a) \$ ..... [2]

- (b) Samia invests \$400 for 2 years at 6% per year **compound** interest.  
Calculate how much **interest** Samia receives.  
Give your answer to 2 decimal places.

Answer(b) \$ ..... [2]

---

5 (a)  $-4$   $-16$   $0.12$   $7$   $144$   $\sqrt{7}$   $2\frac{2}{3}$

From this list of numbers, write down

(i) the smallest number,

Answer(a)(i) ..... [1]

(ii) a natural number,

Answer(a)(ii) ..... [1]

(iii) a square number,

Answer(a)(iii) ..... [1]

(iv) an irrational number.

Answer(a)(iv) ..... [1]

(b) Write down 40 as a **product** of prime numbers.  
(1 is not a prime number.)

Answer(b)  $40 =$  ..... [2]

(c) Three pairs of prime numbers have a **sum** of 40.

One pair is 3 and 37.

Find the other two pairs.

Answer(c) ..... and .....  
..... and ..... [2]

- 1 Work out the value of  $\frac{9-3 \times 7}{3 \times 2}$ .

Answer ..... [1]

- 2 Write the following in order, with the smallest first.

$\frac{3}{5}$       0.58      62%

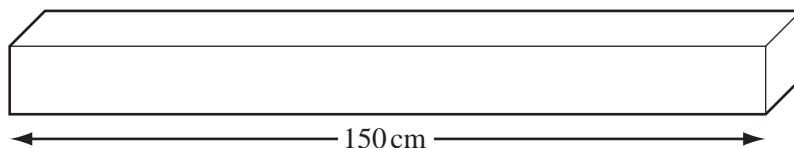
Answer ..... < ..... < ..... [1]

- 3 Jamal arrived at work at 09 20 and left at 17 15.

How long, in hours and minutes, did he spend at work?

Answer ..... h ..... min [1]

4



NOT TO  
SCALE

A piece of wood is 150 centimetres long.

It has to be cut into equal lengths of  $6\frac{1}{4}$  centimetres.

How many of these lengths can be cut from this piece of wood?

Answer ..... [1]

- 1 Work out the value of  $\frac{6-3 \times 12}{3 \times 2}$ .

Answer ..... [1]

---

- 2 Write the following in order, with the smallest first.

$\frac{4}{5}$       0.79      81%

Answer ..... < ..... < ..... [1]

---

- 3 Jamal arrived at work at 09 40 and left at 17 25.

How long, in hours and minutes, did he spend at work?

Answer ..... h ..... min [1]

---

- 17 (a) The surface area of the earth is approximately 510 000 000 square kilometres.

Write this number in standard form.

Answer(a) .....  $\text{km}^2$  [2]

- (b) 29.4% of the surface area of the earth is land.

Calculate the area of land.

Answer(b) .....  $\text{km}^2$  [2]

---

1 (a) Find the value of

(i)  $5^0$ ,

*Answer(a)(i)* ..... [1]

(ii) the square root of 64,

*Answer(a)(ii)* ..... [1]

(iii) the cube root of 64,

*Answer(a)(iii)* ..... [1]

(iv) the integer closest in value to  $(1.8)^3$ .

*Answer(a)(iv)* ..... [1]

(b) Write down

(i) a common factor of 15 and 27, which is greater than 1,

*Answer(b)(i)* ..... [1]

(ii) a common multiple of 10 and 12.

*Answer(b)(ii)* ..... [1]

(c) (i) Two of the factors of 2007 are square numbers. One of these is 1.

Find the other square number.

*Answer(c)(i)* ..... [1]

(ii) Write down the two factors of 2007 which are prime.

*Answer(c)(ii)* ..... and ..... [2]

- 2 Marguerite earns \$336 per month.  
She divides her earnings between bills, food, savings and personal spending.

- (a) Her bills take  $\frac{2}{7}$  of her earnings.

Show that \$240 is left for her other items.

*Answer(a)*

[2]

- (b) She divides the \$240 between food, savings and personal spending in the ratio 5 : 3 : 4.  
Calculate how much she spends on food.

*Answer(b)* \$ ..... [2]

- (c) She saves the same amount each month.  
Show that she saves \$720 in one year.

*Answer(c)*

[2]

- (d) She invests the \$720 in a bank which pays 6% per year **compound** interest.  
How much will this be worth after 2 years?

*Answer(d)* \$ ..... [3]

---



- 1 At noon one day the temperature is  $-9.5^{\circ}\text{C}$ .  
By midnight the temperature has fallen by  $3.6^{\circ}\text{C}$ .  
What is the temperature at midnight?

Answer .....  $^{\circ}\text{C}$  [1]

---

- 2 Insert brackets to make the following statement correct.

$$2 \times 3 - 4 + 5 = 3 \quad [1]$$

---

- 4 The  $n$ th term of a sequence is given by  $n^2+2$ .  
Work out the 4th term.

Answer ..... [1]

---

- 5  $\$1 = 0.78$  euros  
Use this exchange rate to change  $\$15.50$  into euros.

Answer ..... euros [1]

---

- 7 (a) Change 56.1 metres into kilometres.

Answer(a) ..... km [1]

- (b) Change 15.3 metres into millimetres.

Answer(b) ..... mm [1]

---

- 9 Work out  $43^3$ , giving

- (a) your full calculator display,

Answer(a) ..... [1]

- (b) your answer correct to the nearest thousand.

Answer(b) ..... [1]

---

- 10 Write these fractions in order with the smallest first.

$$\frac{33}{50} \quad \frac{2}{3} \quad \frac{6}{10}$$

Answer ..... < ..... < ..... [2]

---

**12** Only two of the following five statements are correct.

- A**  $0.07077 \geq 0.07707$
- B**  $0.07077 \neq 0.07707$
- C**  $0.07077 = 0.07707$
- D**  $0.07077 < 0.07707$
- E**  $0.07077 > 0.07707$

Write down the letters which correspond to the two correct statements.

*Answer* ..... and ..... [2]

---

**13** Work out  $2.6 \times 10^{-3} + 9.1 \times 10^{-4}$ .  
Write your answer in standard form.

*Answer* ..... [2]

---

**14** The length of a mirror is 15.6 centimetres correct to the nearest millimetre.  
Complete the statement below about the length of the mirror.

*Answer* ..... cm  $\leq$  length < ..... cm [2]

---

**15** A truck uses 2.5 litres of fuel to travel 8 kilometres.

**(a)** How far will the truck travel on 1 litre of fuel?

*Answer(a)* ..... km [1]

**(b)** How far will the truck travel on 120 litres of fuel?

*Answer(b)* ..... km [1]

---

19 A shopkeeper buys some ready-made meals from a supplier.

(a) Complete the bill shown below.

Meal	Cost of one meal	Number of meals	Total cost
Chicken curry	\$3.48	15	\$
Pizza	\$2.99	28	\$

[1]

(b) He sells all 15 Chicken curry meals for \$4.00 each.  
Work out the total profit on these meals.

Answer(b) \$ ..... [1]

(c) He sells 15 Pizzas for \$3.55 each but is unable to sell the rest.  
Calculate his loss on the Pizzas as a **percentage** of the total cost of the Pizzas.

Answer(c) ..... % [2]

---

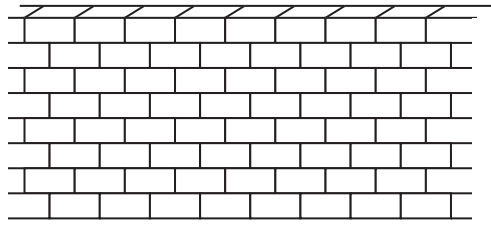
1 (a)

 $\frac{2}{3}$     2    3    3.14     $\sqrt{35}$     10    24    37    45    88

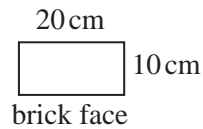
From the list of numbers above choose one that is

- |                              |                              |     |
|------------------------------|------------------------------|-----|
| (i) an irrational number,    | <i>Answer(a)</i> (i) .....   | [1] |
| (ii) the cube root of 27,    | <i>Answer(a)</i> (ii) .....  | [1] |
| (iii) a multiple of 9,       | <i>Answer(a)</i> (iii) ..... | [1] |
| (iv) a prime number,         | <i>Answer(a)</i> (iv) .....  | [1] |
| (v) a factor of 44,          | <i>Answer(a)</i> (v) .....   | [1] |
| (vi) the product of 6 and 4. | <i>Answer(a)</i> (vi) .....  | [1] |

6



Part of the wall

NOT TO  
SCALE

- (a) A builder estimates the number of bricks in a wall by dividing the area of the wall by the area of the face of a brick.  
 A brick wall is 10 **metres** long and 1.5 **metres** high.  
 Each brick is 20 **centimetres** long and 10 **centimetres** high.  
 Calculate how many bricks the builder estimates are in the wall.  
 Show all your working.

*Answer(a)* ..... bricks [3]

- (b) Another wall will need 720 bricks.  
 The builder adds an extra 5% to this number to allow for mistakes.

- (i) Calculate how many bricks the builder needs to buy.

*Answer(b) (i)* ..... bricks [2]

- (ii) Bricks are sold in packs of 100 which can not be split.  
 How many packs should the builder buy?

*Answer(b) (ii)* ..... packs [1]

- (c) The builder mixes sand and cement in the ratio 5:2 to make mortar.  
 He wants 14 buckets of mortar.

- (i) How many buckets of sand and how many buckets of cement does he need?

*Answer(c) (i)* He needs ..... buckets of sand and ..... buckets of cement. [2]

- (ii) One bag of cement fills 3.5 buckets.  
 How many bags of cement must the builder buy?

*Answer(c) (ii)* ..... bags [1]

- 1 The temperature at noon at an Antarctic weather centre was  $-15^{\circ}\text{C}$ .  
At midnight it had fallen by  $12^{\circ}\text{C}$ .  
What was the temperature at midnight?

Answer .....  $^{\circ}\text{C}$  [1]

---

- 2            0.09            90%             $\frac{9}{1000}$             9%            0.9             $\frac{9}{100}$             900%

Write down the three numbers from the list above which have the same value.

Answer ..... [1]

---

- 3 Write down the number of square centimetres in one square metre.

Answer ..... [1]

---

- 4 (a) Write down a number, other than 1, which is a **factor** of both 14 and 35.

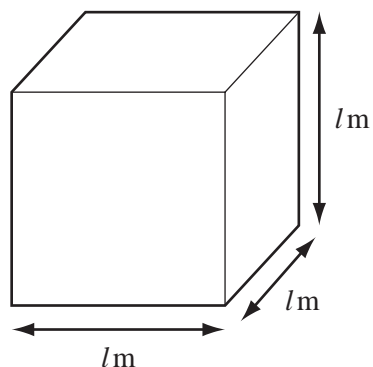
Answer(a) ..... [1]

- (b) Write down a number which is a **multiple** of both 14 and 35.

Answer(b) ..... [1]

---

5



NOT TO  
SCALE

A cube of side  $l$  metres has a volume of 20 cubic metres.  
Calculate the value of  $l$ .

Answer  $l =$  ..... [2]

---

- 6 (a) Work out

$$\frac{12.48 \times 0.063}{\sqrt{8} + 7.52}.$$

Write down all the figures on your calculator display.

Answer(a) ..... [1]

- (b) Write your answer to **part (a)** correct to 2 significant figures.

Answer(b) ..... [1]

---

- 7 The population of a city is 350 000 correct to the nearest ten thousand.  
Complete the statement about the limits of the population.

Answer .....  $\leq$  population  $<$  ..... [2]

---

- 11 Rodriguez puts \$500 into a bank account. The bank pays 5% compound interest per year.

- (a) How much is the interest after one year?

Answer(a) \$ ..... [1]

- (b) Work out the **total amount** he has in his bank account after two years.

Answer(b) \$ ..... [2]

---



- 19** Joseph, Maria and Rebecca each win a prize.  
Their total prize money is \$30.

Joseph wins  $\frac{7}{12}$  of the \$30.

Maria wins 30% of the \$30.

Rebecca wins the rest of the \$30.

Calculate the amount each receives.

*Answer* Joseph \$..... [2]

Maria \$..... [2]

Rebecca \$..... [1]

---

- 20** There are 565 sheets of paper in a book.

- (a)** How many sheets of paper are there in 2000 of these books?  
Give your answer in standard form.

*Answer(a)* ..... [2]

- (b)** A pile of 565 sheets of paper is 25 millimetres high.  
Calculate the thickness of 1 sheet of paper.  
Give your answer in standard form.

*Answer(b)* ..... mm [3]

---

- 1 The distance from Buenos Aires to Wellington is approximately 10 100 kilometres.  
Write this number in standard form.

Answer ..... km [1]

---

- 3 The highest mountain in Argentina is Aconcagua.  
Its height is 6960 metres, correct to the nearest **twenty** metres.  
Write down the smallest possible height of Aconcagua.

Answer ..... m [1]

---

- 4 Which one of the numbers below is **not** a rational number?

$$7 \quad \frac{2}{3} \quad \sqrt{5} \quad -1\frac{1}{2} \quad \sqrt{81}$$

Answer ..... [1]

---

- 6 A bottle of lemonade contains  $1\frac{1}{2}$  litres.

A glass holds  $\frac{1}{8}$  litre.

How many glasses can be filled from one bottle of lemonade?

Answer ..... [2]

---

- 10 An integer  $n$  is such that  $60 \leq n \leq 70$ .  
Write down a value of  $n$  which is

(a) a prime number,

*Answer(a)* ..... [1]

(b) a multiple of 9,

*Answer(b)* ..... [1]

(c) a square number.

*Answer(c)* ..... [1]

---

- 15 (a) Write 0.48 correct to 1 significant figure.

Answer(a) ..... [1]

- (b) (i) Find an approximate answer for the sum

$$9.87 - 5.79 \times 0.48$$

by rounding each number to 1 significant figure. Show your working.

Answer(b)(i) ..... [1]

- (ii) Use your calculator to find the exact answer for the sum in **part (b) (i)**.  
Write down all the figures on your calculator.

Answer(b)(ii) ..... [1]

- 7 Alphonse spends \$28 on food.

This amount is  $\frac{4}{9}$  of his allowance.

Calculate his allowance.

Answer \$ ..... [2]

- 17 Three friends, Cleopatra, Dalila and Ebony go shopping.

The money they each have is in the ratio

$$\text{Cleopatra} : \text{Dalila} : \text{Ebony} = 5 : 7 : 8.$$

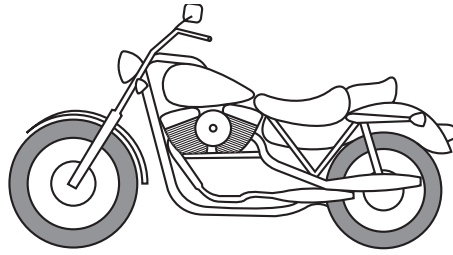
Cleopatra has \$15.

- (a) How many dollars do they have in total?

Answer(a) ..... [2]

- (b) Dalila spends \$12 on a hat.  
How many dollars does she have left?

Answer(b) ..... [1]



\$900

Lorenzo saves money for a motorbike.  
The marked price of the motorbike is \$900.  
He pays a deposit of 35% of the marked price.

(a) Calculate his deposit.

*Answer(a)* \$..... [2]

(b) He then makes 12 monthly payments of \$60 each.  
How much more than the \$900 marked price does he pay altogether?

*Answer(b)* \$..... [3]

---

- (b) **Another pool** holds 61 500 litres of water.

Jon uses a hosepipe to fill this pool.

Water flows through the hosepipe at 1000 litres per hour.

- (i) Calculate how long it takes to fill the pool.  
Give your answer in hours and minutes.

*Answer(b)(i)* ..... hours ..... minutes [2]

- (ii) Change 61 500 litres to gallons.  
[4.55 litres = 1 gallon.]

*Answer(b)(ii)* ..... gallons [1]

- (iii) Every 10 000 **gallons** of water needs 2.5 litres of purifier.  
How many litres of purifier does Jon use for this pool?

*Answer(b)(iii)* ..... litres [2]

- (iv) The purifier is sold in 1 litre bottles.  
How many **bottles** of purifier must Jon buy for this pool?

*Answer(b)(iv)* ..... [1]

---

- 1 The diameter of the sun is 1 392 530 kilometres.  
Write this value correct to 4 significant figures.

Answer ..... km [1]

---

- 2 A bag of 30 sweets contains 8 chocolates, 13 nougats and 9 toffees.

A sweet is selected at random.

What is the probability that it is a toffee?

Answer ..... [1]

---

- 3 Anne took a test in chemistry.  
She scored 20 marks out of 50.  
Work out her percentage mark.

Answer .....% [1]

---

- 4 Write, in its simplest form, the ratio

3.5 kilograms : 800 grams.

Answer ..... : ..... [2]

---

- 5 Work out  $4^{-3}$  as a fraction.

Answer ..... [2]

---

- 6 2, 3, 5, 9, 12, 15

From the set of numbers above, write down

(a) a multiple of 6,

Answer (a) ..... [1]

(b) a prime factor of 27.

Answer (b) ..... [1]

---

- 11 Yasmeen is setting up a business.  
 She borrows \$5000 from a loan company.  
 The loan company charges 6% per year simple interest.  
 How much interest will Yasmeen pay after 3 years?

Answer \$ ..... [2]

---

- 18 Camilla has \$5 to spend in the market.  
 She buys  $1\frac{1}{2}$  kilograms of bananas priced at 80 cents per kilogram and 3 yams priced at 45 cents each.  
 How much money does she have left?

Answer \$ ..... [3]

---

19 
$$\frac{8.95 - 3.05 \times 1.97}{2.92}$$

- (a) (i) Write the above expression with each number rounded to one significant figure.

Answer (a)(i) ..... [1]

- (ii) Use your answer to find an **estimate** for the value of the expression.

Answer (a)(ii) ..... [1]

- (b) Use your calculator to work out the value of the **original** expression.  
 Give your answer correct to 2 decimal places.

Answer (b) ..... [1]

---



20

Country	Area (km <sup>2</sup> )
Brazil	$8.51 \times 10^6$
Panama	$7.71 \times 10^4$
Guyana	$2.15 \times 10^5$
Colombia	$1.14 \times 10^6$

The table above gives the areas of four South American countries, correct to 3 significant figures.

- (a) List the countries in order of area, smallest to largest.

Answer (a) ..... < Guyana < ..... < ..... [1]

- (b) Use a whole number to complete the statement in the answer space.

Answer (b) The area of Colombia is approximately ..... times the area of Guyana. [2]

---

21

<p style="text-align: center;"><b>SALE</b> All items 35% Reduction</p>
--

Abdul bought a spade in this sale. Its **original** price was \$16.

- (a) How much did Abdul save?

Answer (a) \$ ..... [2]

- (b) The next day, all items were sold at half the **original** price.  
How much **more** would Abdul have saved if he had waited until the next day to buy the spade?

Answer (b) \$ ..... [1]

---

1 Juana is travelling by plane from Spain to England.

- (a) Her case weighs 17.2 kilograms.  
The maximum weight allowed is 20 kilograms.  
By how much is the weight of her case below the maximum allowed?

Answer (a) ..... kg [1]

- (b) She changes 150 euros (€) into pounds (£).  
The exchange rate is €1 = £0.71.  
Calculate how much she receives.

Answer (b) £ ..... [1]

- (c) She travels from her home to the airport by train.  
She catches a train at 09 55 and the journey takes 45 minutes.

- (i) Write down the time she arrives at the airport.

Answer (c)(i) ..... [1]

- (ii) She has to wait until 12 10 to get on her plane.  
Work out how long she has to wait.

Answer (c)(ii) ..... h ..... min [1]

- (d) The plane takes off at 12 40 Spanish time, which is 11 40 English time.  
The flight takes  $2\frac{1}{4}$  hours.  
What is the time in England when she arrives?

Answer (d) ..... [1]

- (e) The plane has seats for 420 passengers.  
15% of the seats are empty.  
How many passengers are on the plane?

Answer (e) ..... [3]

- 1 At a weather centre the temperature at midnight was  $-21^{\circ}\text{C}$ .  
By noon the next day it had risen to  $-4^{\circ}\text{C}$ .  
By how many degrees had the temperature risen?

Answer ..... $^{\circ}\text{C}$  [1]

---

- 2 Place brackets in the following calculation to make it a correct statement.

$$10 - 5 \times 9 + 3 = 60 \quad [1]$$


---

- 3 Write  $\frac{5}{9}$  as a decimal, correct to two decimal places.

Answer ..... [2]

---

- 14 Bernard is buying a radio priced at \$19.60.  
The shopkeeper gives him a 15% discount.  
Calculate how much Bernard pays.

Answer \$ ..... [3]

---

- 5 Antonia is making a cake.  
She uses currants, raisins and sultanas in the ratio

$$\text{currants} : \text{raisins} : \text{sultanas} = 4 : 3 : 5.$$

The total mass of the three ingredients is 3.6 kilograms.  
Calculate the mass of sultanas.

Answer ..... kg [2]

---

- 17** Ferdinand's electricity meter is read every three months.  
The reading on 1st April was 70683 units and on 1st July it was 71701 units.

**(a)** How many units of electricity did he use in those three months?

*Answer(a)* ..... units [1]

- (b)** Electricity costs 8.78 cents per unit.  
Calculate his bill for those three months.  
Give your answer in dollars, correct to the nearest cent.

*Answer(b)* \$ ..... [2]

---

- 18 (a)** List all the factors of 30.

*Answer(a)* ..... [2]

- (b)** Write down the prime factors of 30.  
(1 is not a prime number.)

*Answer(b)* ..... [1]

---

19 In New Zealand, a bus leaves New Plymouth at 8.10 am and arrives in Wellington at 2.55 pm.

(a) How long, in **hours and minutes**, does the journey take?

*Answer(a)* ..... h ..... min [1]

(b) The distance from New Plymouth to Wellington is 355 kilometres.  
Calculate, in kilometres per hour, the average speed for the journey.

*Answer(b)* ..... km/h [3]

---

- 1 Work out  $4^3 - 5^2$ .

Answer ..... [1]

---

- 2 The Dead Sea shore is 395 metres **below** sea level.  
Hebron is 447 metres **above** sea level.  
Find the difference in height.

Answer ..... [1]

---

- 3 Write as a fraction in its lowest terms

(a) 75%,

Answer (a) ..... [1]

(b) 0.07.

Answer (b) ..... [1]

---

- 4 Look at the numbers

21, 35, 49, 31, 24.

From this list write down

(a) a square number,

Answer (a) ..... [1]

(b) a prime number.

Answer (b) ..... [1]

---

5



NOT TO  
SCALE

A model of a car has a scale of 1:25.  
The model is 18 cm long.  
Calculate, in metres, the actual length of the car.

Answer ..... m [2]

---

- 6 Without using a calculator, work out  $2\frac{1}{4} \div \frac{1}{2}$  as a single fraction.  
**Show all your working.**

Answer ..... [2]

---

- 7 Sergio's height is 142 cm, to the nearest centimetre.  
 Complete the statement about the limits of his height.

Answer ..... cm  $\leq$  height < ..... cm [2]

---

- 9 Alix changed a traveller's cheque for 200 euros (€) into dollars (\$) when she visited the USA.  
 The exchange rate was 1 dollar = 1.05 euros.  
 How many dollars did she receive?

Answer \$ ..... [2]

---

10



For the shape shown, write down

- (a) the number of lines of symmetry,

Answer (a) ..... [1]

- (b) the order of rotational symmetry.

Answer (b) ..... [1]

---

- (d) The four corner posts are each 2 metres high and 10 **centimetres** by 10 **centimetres** in cross-section.

Calculate the volume, in cubic metres, of one post.

*Answer(d)* .....m<sup>3</sup> [2]

- (e) To build the shelter, she will also need 1.5 kilograms of nails.  
Complete the table below.

Item		Total cost of item
Posts	at \$1.20 each	\$.....
Rectangular pieces of wood	at \$0.30 each	\$.....
Roof material	at \$1.60 per m <sup>2</sup>	\$.....
Nails	at \$1.40 per kg	\$.....
<b>Total cost of shelter</b>		<b>\$.....</b>

[5]



**14** The temperatures at sunrise in Berne on the seven days of one week were:

Sunday	-1 °C
Monday	-7 °C
Tuesday	-6 °C
Wednesday	1 °C
Thursday	3 °C
Friday	0 °C
Saturday	-4 °C

**(a)** List the days on which the temperature at sunrise was less than  $-3$  °C.

*Answer (a)*..... [1]

**(b)** Work out the mean (average) of the seven temperatures.

*Answer (b)*.....°C [3]

---

**15 (a)** Work out each of the following as a decimal.

**(i)** 28%

*Answer (a)(i)*..... [1]

**(ii)**  $\frac{275}{1000}$

*Answer (a)(ii)*..... [1]

**(iii)**  $\frac{2}{7}$

*Answer (a)(iii)*..... [1]

**(b)** Write 28%,  $\frac{275}{1000}$  and  $\frac{2}{7}$  in order of the size, smallest first.

*Answer (b)*.....<.....<..... [1]

---

1                                      20   21   22   23   24   25   26   27   28   29   30

From the set of numbers above, write down

(a) a multiple of 8,

Answer (a)..... [1]

(b) a square,

Answer (b)..... [1]

(c) a cube,

Answer (c)..... [1]

(d) two prime numbers,

Answer (d) ..... [2]

(e) a factor of 156,

Answer (e)..... [1]

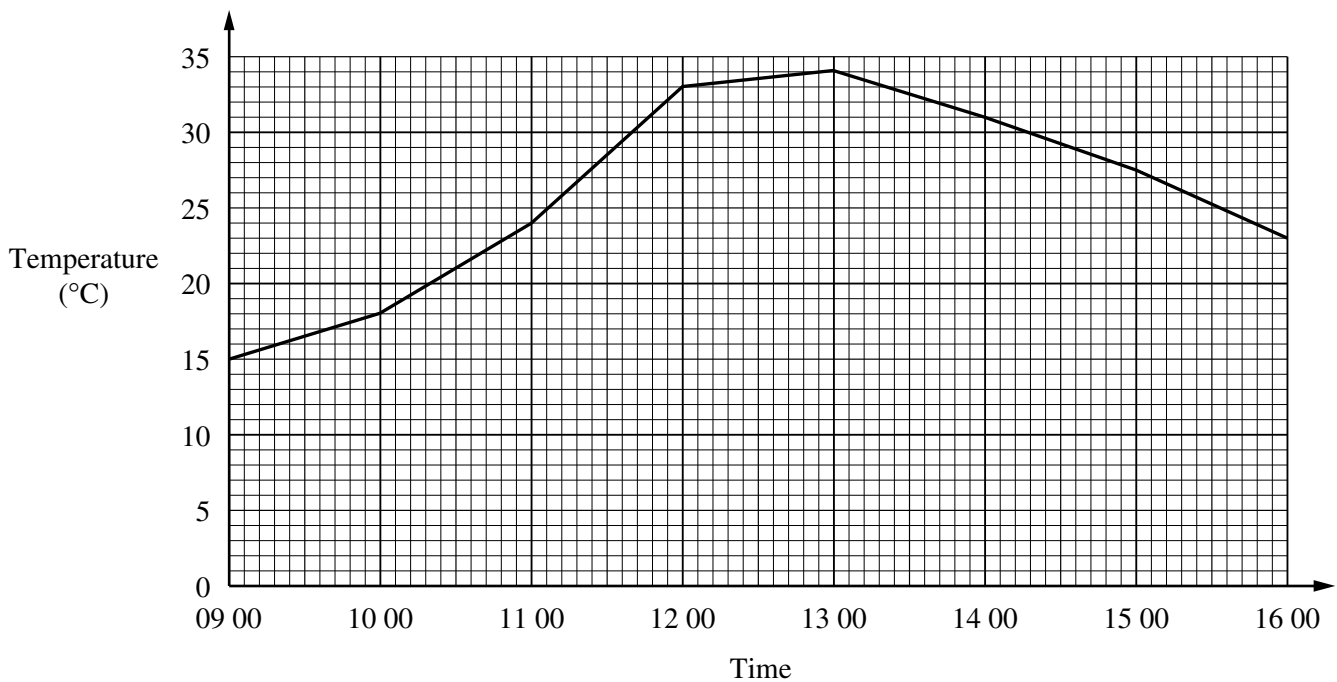
(f) the square root of 784,

Answer (f) .....[1]

(g) two numbers whose product is 567.

Answer (g).....[1]

- 2 (a) Jorina recorded the temperature every hour during the school day.  
The graph shows the results.



- (i) At what time was the highest temperature recorded?

Answer (a)(i)..... [1]

- (ii) At what time was the temperature 21 °C?

Answer (a)(ii).....[1]

- (iii) Find the increase in temperature between 11 00 and 12 00.

Answer (a)(iii) ..... °C [2]

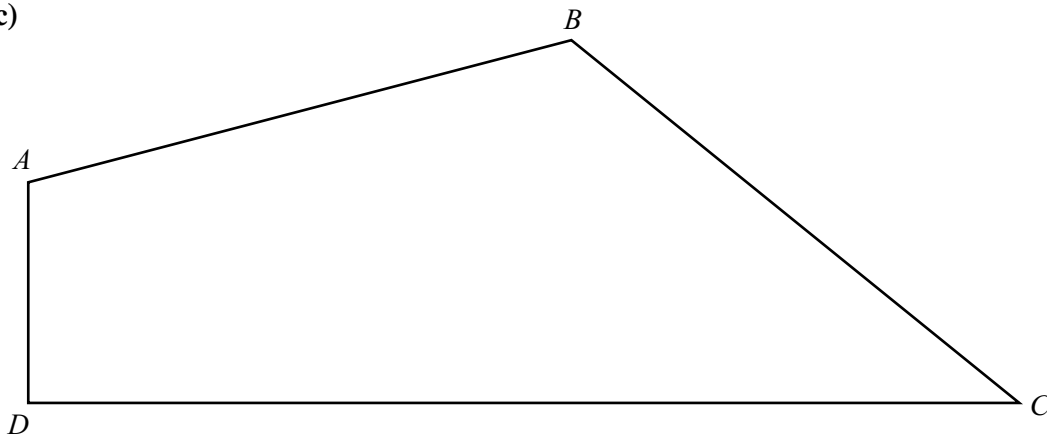
- 8 (a) A mobile phone company changes its rental charge from \$80 per **year** to \$7.50 per **month**.  
Work out the percentage increase.

Answer (a) ..... % [3]

- (b) George's phone card lasts for 300 minutes. He has used  $\frac{3}{5}$  of this time.  
Work out how many minutes are left on his phone card.

Answer (b) ..... minutes [3]

(c)



- (i) On the diagram above, using a straight edge and compasses only, construct the loci which are
- (1) equidistant from  $A$  and from  $B$ , [2]
  - (2) equidistant from  $CB$  and from  $CD$ . [2]
- (ii) The diagram shows a field  $ABCD$ . The mobile phone company plans to put a mast in the field. The mast must be
- nearer to  $B$  than to  $A$
  - nearer to  $CD$  than to  $CB$ .

Shade the part of the diagram which shows where the mast should be put. [2]

1 Work out  $\sqrt{7.1^3 + 2.9^3}$ , giving

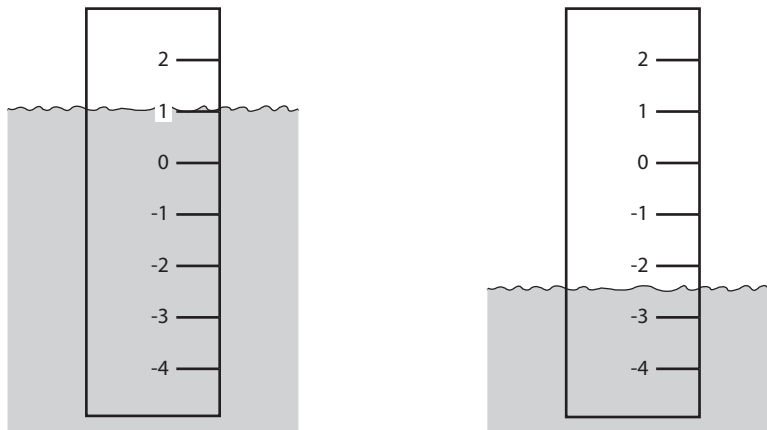
(a) your full calculator display,

Answer (a)..... [1]

(b) your answer to 2 decimal places.

Answer (b)..... [1]

2 The diagram shows how the water level of a river went down during a drought.



The measurements are in metres.

(a) By how many metres did the water level go down?

Answer (a).....m [1]

(b) A heavy rainfall followed the drought and the water level went up by 1.6 metres. What was the water level after the rainfall?

Answer (b).....m [1]

3 (a) Write in order of size, smallest first

0.68,  $\frac{33}{50}$ , 67%.

Answer (a) ..... < ..... < ..... [1]

(b) Convert 0.68 into a fraction in its lowest terms.

Answer (b)..... [1]

- 4 Mahesh and Jayraj share \$72 in the ratio 7:5.  
How much does Mahesh receive?

Answer \$..... [2]

---

- 5 The population of a city is 550 000.  
It is expected that this population will increase by 42% by the year 2008.  
Calculate the expected population in 2008.

Answer ..... [2]

---

- 6 Areeg goes to a bank to change \$100 into riyals.  
The bank takes \$2.40 and then changes the rest of the money at a rate of \$1 = 3.75 riyals.  
How much does Areeg receive in riyals?

Answer .....riyals [2]

---

- 7 Write down the value of  $\left(1\frac{1}{2}\right)^{-2}$  as a fraction.

Answer ..... [2]

---

- 10 There are approximately 500 000 grains of wheat in a 2 kilogram bag.

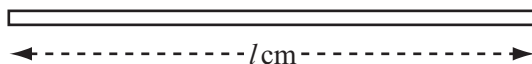
(a) Calculate the mass of one grain in grams.

Answer (a) .....g [2]

(b) Write your answer to **part (a)** in standard form.

Answer (b) .....g [1]

- 12** The diagram shows a pole of length  $l$  centimetres.



- (a)** Hassan says that  $l = 88.2$ .  
Round this to the nearest whole number.

*Answer (a)*  $l = \dots\dots\dots$  [1]

- (b)** In fact the pole has a length 86 cm, to the nearest centimetre.  
Complete the statement about  $l$ .

*Answer (b)*  $\dots\dots\dots \leq l < \dots\dots\dots$  [2]

---

- 13** On a journey a bus takes 35 minutes to travel the first 10 kilometres.  
It then travels a further 20 kilometres in the next 40 minutes.

- (a)** The bus started the journey at 18 50.  
At what time did it complete the journey?

*Answer (a)*  $\dots\dots\dots$  [1]

- (b)** Calculate the average speed of the whole journey in

- (i)** kilometres/minute,

*Answer (b)(i)*  $\dots\dots\dots$  km/min [2]

- (ii)** kilometres/hour.

*Answer (b)(ii)*  $\dots\dots\dots$  km/h [1]

---

- 14** Show **all your working** for the following calculations.  
The answers are given so it is only your working that will be given marks.

(a)  $\frac{1}{2} + \frac{2}{3} = 1\frac{1}{6},$

*Answer (a)*

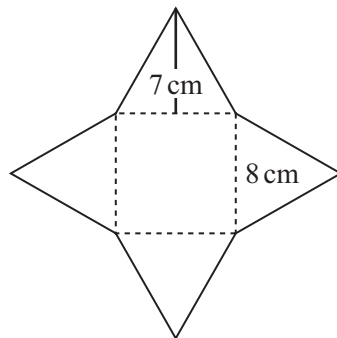
[2]

(b)  $1\frac{1}{5} \times 1\frac{3}{4} = 2\frac{1}{10}.$

*Answer (b)*

[2]

- 15** The diagram shows a square of side 8 cm and four congruent triangles of height 7 cm.



- (a) Calculate

- (i) the area of one triangle,

*Answer (a)(i)* .....cm<sup>2</sup> [2]

- (ii) the area of the whole shape.

*Answer (a)(ii)* .....cm<sup>2</sup> [2]

- (b) The shape is the net of a solid.  
Write down the special name for this solid.

*Answer (b)* ..... [1]

- 1 Work out  $\$50 - \$23.46$ .

Answer \$..... [1]

---

- 2 A train leaves Johannesburg at 09 45 and arrives in Pretoria at 10 32.  
How many minutes does the journey take?

Answer.....minutes [1]

---

- 3 Work out  $\frac{37^3 + 13^3}{37 + 13}$ .

Answer..... [2]

---

- 4 Write 24% as a fraction in its lowest terms.

Answer..... [2]

---

---



- 7 When Carla started work she was paid \$80 each week.  
After 3 months her pay was increased by 15%.  
After the increase how much was she paid each week?

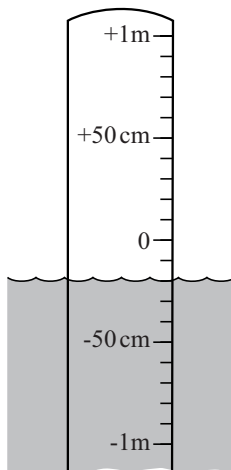
Answer \$..... [2]

- 8 The population of Argentina is  $3.164 \times 10^7$ . Its area is  $2.8 \times 10^6$  square kilometres.  
Work out the average number of people per square kilometre in Argentina.

Answer.....people/km<sup>2</sup> [2]

9

The diagram shows a flood-warning post in a river.



- (a) Write down the water level shown in the diagram.

Answer (a).....cm [1]

- (b) The water level rises by 1 metre.  
What is the new level?

Answer (b).....cm [1]

**15 (a)** Write down the values of

$$2^0 = \dots\dots\dots, 2^1 = \dots\dots\dots, 2^2 = \dots\dots\dots, 2^3 = \dots\dots\dots, 2^4 = \dots\dots\dots \quad [2]$$

**(b)** Change  $\frac{5}{49}$  to a decimal. Write down your full calculator display.

$$\text{Answer (b)} \quad \frac{5}{49} = \dots\dots\dots \quad [1]$$

**(c)** What do you notice about your answers to parts **(a)** and **(b)**?

*Answer (c)* .....  
 ..... [1]

---

- 1 (a) A bottle of mass 480 grams contains 75 centilitres of water.

(i) Write 75 centilitres in millilitres.

Answer (a)(i) ..... ml [1]

(ii) Write 75 centilitres in litres.

Answer (a)(ii) ..... l [1]

(iii) The mass of 480 grams is correct to the nearest 10 grams.

Complete the statement on the answer line.

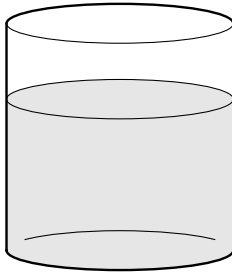
Answer (a)(iii) ..... g  $\leq$  mass < ..... g [2]

(iv) Write 480 grams in kilograms.

Answer (a)(iv) ..... kg [1]

- (b) The diagrams below are accurate scale drawings of containers with water in them.

(i)

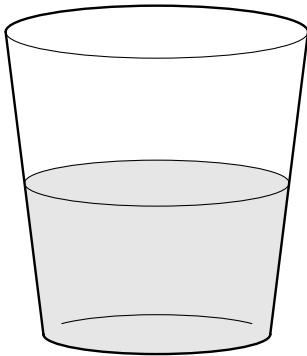


The capacity of this cylindrical jar is 600 ml of water.

By measuring the height of the jar and the height of the water, find the amount of water in the jar.

Answer (b)(i) ..... ml [2]

(ii)



The capacity of this bucket is 7 litres.

**Estimate** the amount of water in the bucket.

Answer (b)(ii) ..... l [2]

6 Ian and Joe start to dig a garden. They both dig at the same rate.

(a) When they are half-way through the job, what fraction of the garden has Ian dug?

*Answer (a)* ..... [2]

(b) Keith then arrives to help.

All three dig at the same rate until the job is finished.

(i) What fraction of the garden did Ian dig after Keith arrived?

*Answer (b)(i)* ..... [2]

(ii) What fraction of the garden did Ian dig altogether?

*Answer (b)(ii)* ..... [2]

(c) Ian and Joe started to dig at 09 00.

Keith started to dig at 10 00.

Each dug at the same rate throughout.

At what time was the job finished?

*Answer (c)* ..... [2]

---

- (b) Use the table in part (a)(iii) to answer these questions.

The total printing cost is \$20.

- (i) When the newspapers are sold at 20 cents each, calculate the profit in dollars.

*Answer (b)(i) \$* ..... [2]

- (ii) Estimate the price that will give the greatest profit.

*Answer (b)(ii)* ..... [1]

- 10** A number that has only two different prime factors is called semi-prime.

For example, 77 is semi-prime since it has only two prime factors, 7 and 11.

[Remember that 1 is not prime.]

- (a) Show that each of the three consecutive numbers 33, 34 and 35 is semi-prime.

*Answer (a)* .....  
 .....  
 ..... [3]

- (b) Find the smallest semi-prime number.

*Answer (b)* ..... [2]

- (c) Find two consecutive numbers between 10 and 20 which are semi-prime.

*Answer (c)* ..... and ..... [1]

- (d) Find three consecutive numbers between 80 and 90 which are semi-prime.

*Answer (d)* ..... , ..... and ..... [3]