Please check the examination details below before entering your candidate information

Candidate surname	Other names

Centre Number | Candidate Number

Pearson Edexcel Level 1/Level 2 GCSE (9–1)

Time 1 hour 30 minutes

Paper reference **1MA1/1F**

Mathematics

PAPER 1 (Non-Calculator)
Foundation Tier

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser. Tracing paper may be used.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- You must **show all your working**.
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- **Calculators may not be used.**

Information

- The total mark for this paper is 80
- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

P64629A

E:1/1/1/1/1/1/

P 6 4 6 2 9 A 0 1 2 4

Pearson

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Write $\frac{3}{10}$ as a percentage.

$\frac{3}{10} \xrightarrow{\times 10} \frac{30}{100} = 30\%$

30 %

(Total for Question 1 is 1 mark)

2 Write the following numbers in order of size.
Start with the smallest number.

8 –7 –10 1 0 –2

-10 -7 -2 0 1 8

(Total for Question 2 is 1 mark)

3 Write $\frac{9}{100}$ as a decimal.

F $\xrightarrow{\div}$ D

$9 \div 100 = 0.09$

0.09

(Total for Question 3 is 1 mark)

4 Write 327 correct to the nearest ten.

3 2 7 (10s, 1s)

320 — 325 — 330 (327)

330

(Total for Question 4 is 1 mark)

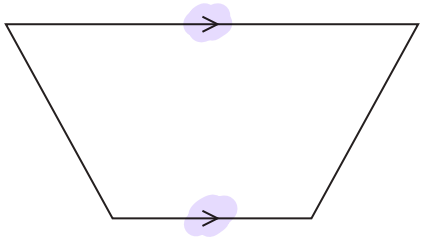
5 Write down the value of 7^2

$7 \times 7 = 49$

49

(Total for Question 5 is 1 mark)

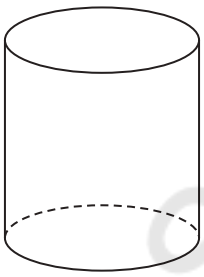
6 (a) Write down the mathematical name of this quadrilateral.



Trapezium

(1)

(b) Write down the mathematical name of this 3-D shape.



Cylinder

(1)

(Total for Question 6 is 2 marks)

7 £42 is shared equally between 3 friends.

How much does each friend get?

£42 ÷ 3 = £14

$$3\overline{)42}$$

14

£ 14

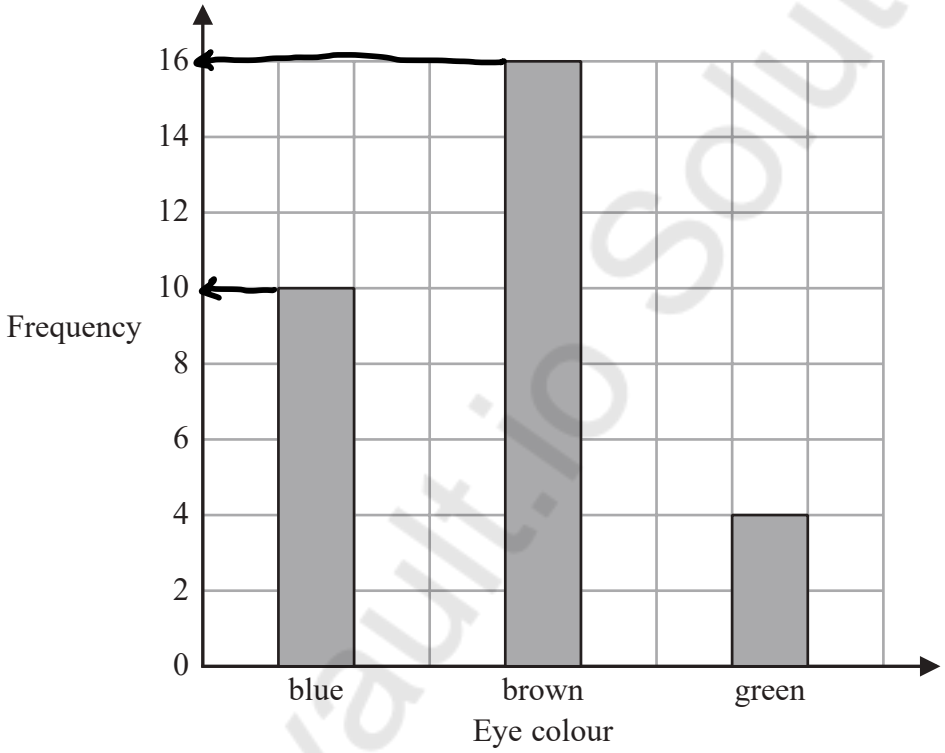
(Total for Question 7 is 2 marks)

8 Grace recorded the eye colour of each of the students in her class.

The frequency table below shows her results.

Eye colour	Frequency
blue	10
brown	15
green	4

Grace then drew the bar chart below for this information.



Write down one thing that is wrong with this bar chart.

The bar for brown eye colour should be at 15 not 16.

(Total for Question 8 is 1 mark)

9 Danny buys,

1 loaf of bread for £1.20
1 bottle of milk for 70p ÷100 £0.70
2 packets of cheese for £2.30 each packet → 2 x 2.30 = £4.60

Danny pays with a £10 note.

He says,

"I should get £3.30 change."

Is Danny correct?
You must show how you get your answer.

$$\begin{array}{r} {}^{1}£1.20 \\ £0.70 \\ +\ £4.60 \\ \hline £6.50 \end{array}$$ (total spent)

$$\begin{array}{r} {}^{9}{}^{1}£10.00 \\ £6.50 \\ \hline £3.50 \end{array}$$ (change)

Danny is wrong.
He got £3.50 change.

(Total for Question 9 is 3 marks)

10 Rachel records the temperature in her garden at noon each day.

On Monday, the temperature was 5 °C.
On Tuesday, the temperature was 10° less than the temperature on Monday.
On Wednesday, the temperature was 3° greater than the temperature on Tuesday.

Find the difference between the temperature on Monday and the temperature on Wednesday.
You must show all your working.

Monday = 5°C

Tuesday = 5°C − 10°C = −5°C

Wednesday = −5°C + 3°C = −2°C

Difference : 5°C + 2°C (− − → +)

5°C + 2°C

= 7°C

7 ..... °C

(Total for Question 10 is 2 marks)

11 The pictogram shows information about the number of video games sold in a shop on Monday, on Tuesday and on Wednesday.

8 + 8 = 16

Monday	⊞ ⊞
Tuesday	⊞ ⊞ ⊞ 6
Wednesday	⊞ 2
Thursday	⊞
Friday	⊞ ⊞ ⊞

8 + 8 + 6 = 22

8 + 2 = 10

Key:

⊞ represents 8 video games

⊞ = 8

8 ÷ 4 = 2

□ = 2 games

(a) How many video games were sold on Monday?

16

(1)

More video games were sold on Tuesday than on Wednesday.

(b) How many more?

22 - 10 = 12

12

(2)

On Thursday and Friday, a total of 32 video games were sold in the shop.

$\frac{1}{4}$ of these 32 video games were sold in the shop on Thursday.

(c) Complete the pictogram for Thursday and Friday.

Thursday : $\frac{1}{4}$ of 32 = 32 ÷ 4 = 8 games

Friday : 32 - 8 = 24 games

(3)

(Total for Question 11 is 6 marks)

12 There are two drama groups in a school.

In one group there are 36 boys and 48 girls. } group 1

In the other group, $\frac{3}{7}$ of the students are boys and the rest of the students are girls. } group 2

Ann says,

"The ratio of the number of boys to the number of girls is the same for both groups."

Is Ann correct?
You must show how you get your answer.

Group 1

B : G

36 : 48 (÷12)

3 : 4

Group 2

B $\frac{3}{7}$ G $\frac{4}{7}$

3 : 4

Ann is correct.

(Total for Question 12 is 3 marks)

13 A number sequence starts 1 2 4 7 (+1, +2, +3)

Emma says that the next term is 7

(a) Explain why Emma may be correct.

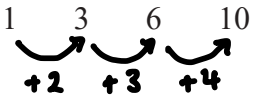
1 + 1 = 2

2 + 2 = 4

4 + 3 = 7

(1)

Here are the first four terms of the sequence of triangle numbers.



(b) Find the 8th term of this sequence.

5th : 10 + 5 = 15

6th : 15 + 6 = 21

7th : 21 + 7 = 28

8th : 28 + 8 = 36

36

(2)

(Total for Question 13 is 3 marks)

14 3 kg of carrots cost £1.80
2 kg of carrots and 5 kg of potatoes cost a total of £3.45

Work out the total cost of 4 kg of carrots and 2 kg of potatoes.
You must show all your working.

Carrots

3kg = £1.80
÷3 ↓ ÷3
1kg = £0.60
x2 ↓ x2
2kg = £1.20
x2 ↓ x2
4kg = £2.40

$3 \overline{)1.80} = 0.60$

$0.60 + 0.60 = 1.20$

$1.20 + 1.20 = 2.40$

Potatoes

£3.45 − £1.20 = £2.25

5kg = £2.25
÷5 ↓ ÷5
1kg = £0.45
x2 ↓
2kg = £0.90

$5 \overline{)2.25} = 0.45$

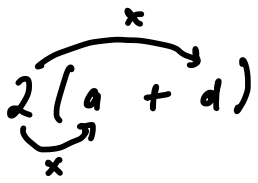
$0.45 + 0.45 = 0.90$

Total: £2.40 + £0.90 = £3.30

£ 3.30

(Total for Question 14 is 4 marks)

15 (a) Expand $2(a + d)$



$2a + 2d$

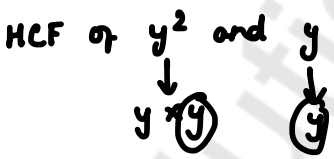
$2a + 2d$

(1)

(b) Factorise $6y^2 - 5y$

HCF of 6 and 5 = 1

HCF of y^2 and y = y



$1y \times 6y = 6y^2$

$1y \times -5 = -5y$

$1y$ (HCF of $6y^2$ and $5y$) $(6y - 5)$

$y(6y-5)$

(1)

(c) Solve $4x - 7 = 37$

$4x - 7 = 37$

$+7 \quad +7$

$4x = 44$

$\div 4 \quad \div 4$

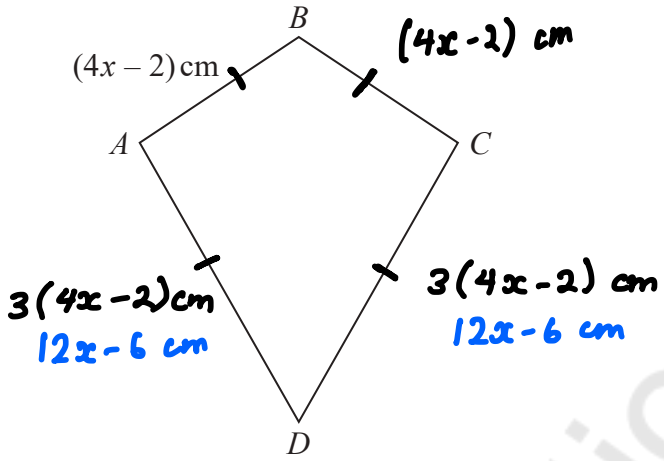
$x = 11$

$x =$ 11

(2)

(Total for Question 15 is 4 marks)

16 $ABCD$ is a kite.



$AB = (4x - 2)$ cm

Jasper says that x could be 0.5

4(0.5) - 2
2 - 2 = 0

(a) Explain why Jasper cannot be correct.

If x = 0.5 then AB = 0 and length cannot be 0cm.

(1)

$AD = 3AB$

The kite has a perimeter of 64 cm.

↳ Add all sides

(b) Find the value of x.

$3(4x-2) = 12x-6$

$4x-2 + 4x-2 + 12x-6 + 12x-6 = 64$

$32x - 16 = 64$

$+16 \quad +16$

$32x = 80$

$\div 32 \quad \div 32$

$x = \frac{80}{32} \begin{matrix} \div 8 \\ \div 8 \end{matrix} = \frac{10}{4} = 2.5$

$x =$ 2.5

(3)

(Total for Question 16 is 4 marks)

17 Heidi wants to make some biscuits using this recipe.

Makes 12 biscuits
125 g butter
200 g flour
50 g sugar

Heidi thinks that she has,

500 g butter
700 g flour
250 g sugar

Assuming that these weights are correct,

(a) work out the greatest number of biscuits Heidi can make.
You must show all your working.

Butter :

500g ÷ 125g = 4 times

Flour :

700g ÷ 200g = 3.5 times

12 x 3.5
↓x10
12 x 35

Sugar

250g ÷ 50g = 5 times

12
× 35
60
360
420
↓÷10
42

42

(4)

Heidi is wrong.
She has more than 250 g of sugar.

(b) Does this affect the greatest number of biscuits Heidi can make?
Give a reason for your answer.

No. She still does not have enough flour.

(1)

(Total for Question 17 is 5 marks)

18 On the grid below, draw the graph of $y = 2x - 2$ for values of x from -2 to 3

x	-2	-1	0	1	2	3
y	-6	-4	-2	0	2	4

$y = 2(-2) - 2 = -4 - 2 = -6$

$y = 2(-1) - 2 = -2 - 2 = -4$

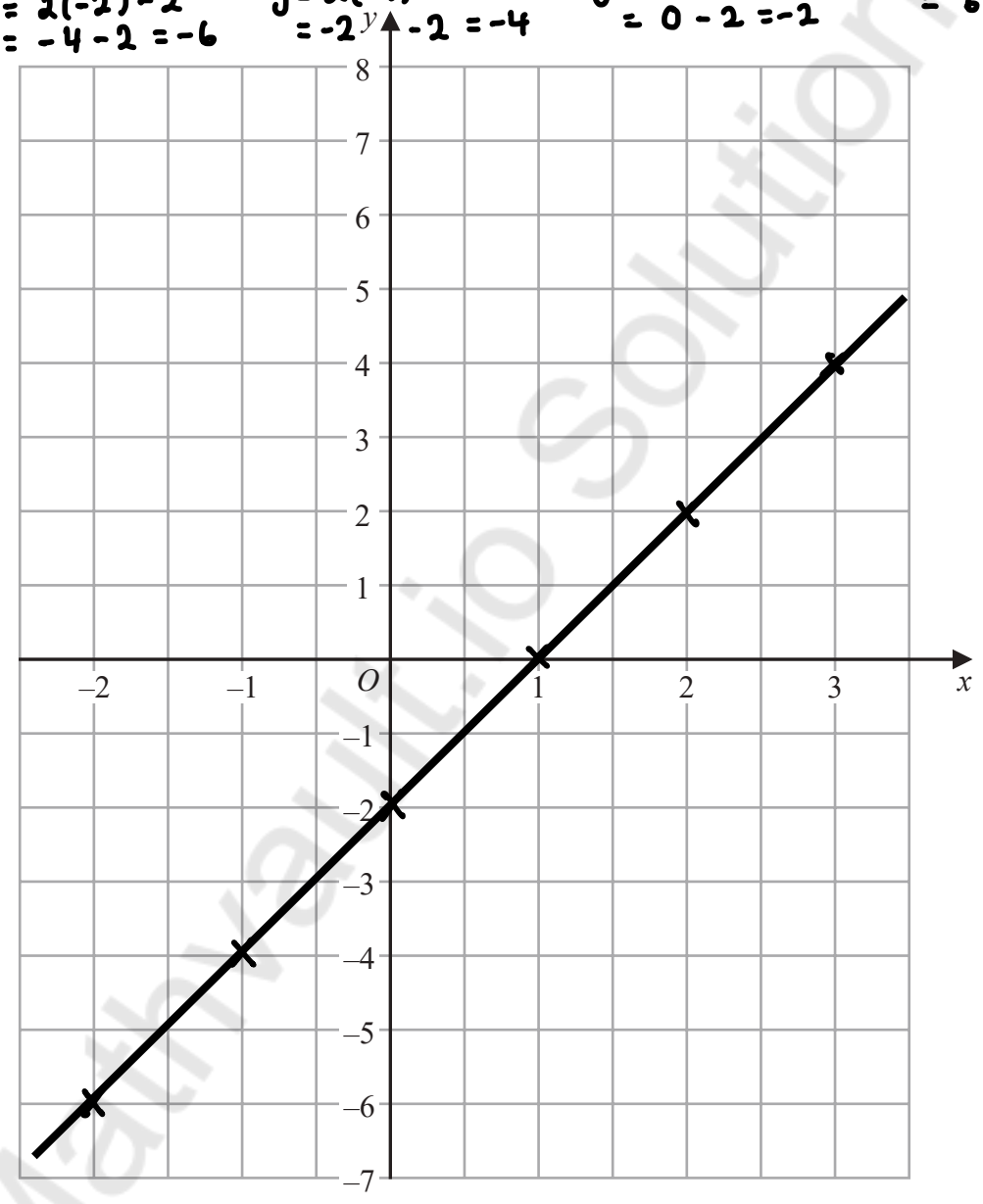
$y = 2(0) - 2 = 0 - 2 = -2$

$y = 2(1) - 2 = 2 - 2 = 0$

$y = 2(2) - 2 = 4 - 2 = 2$

$y = 2(3) - 2 = 6 - 2 = 4$

Coordinates:
(-2, -6)
(-1, -4)
(0, -2)
(1, 0)
(2, 2)
(3, 4)



(Total for Question 18 is 3 marks)

19 Robin buys a watch for £80
He sells the watch for £56

Work out his percentage loss.

Loss £80 − £56 = £24 loss

% loss = $\frac{\text{loss}}{\text{original}} \times 100$

$= \frac{24}{80} \times 100$ (÷8 ÷8)

$= \frac{3}{10} \times 100 = 0.3 \times 100 = 30\%$

0.30

30 %

(Total for Question 19 is 3 marks)

20 (a) Work out 3.67×4.2

x100 x10

367 x 42

$$\begin{array}{r} {}^{2}3^{2}6\ 7 \\ \times\ 4\ 2 \\ \hline 1\ 7\ 3\ 4 \\ +\ 1^{1}4\ 6\ 8\ 0 \\ \hline 1\ 5\ 4\ 1\ 4 \end{array}$$

÷1000 → 15.414

15.414

15.414

(3)

(b) Work out $59.84 \div 1.6$ = 37.4

x10 x10

598.4 ÷ 16 = 37.4

$$\begin{array}{r} 0\ 3\ 7\ .\ 4 \\ \hline 16 \overline{)\ 5^{5}9^{11}8\ .^{6}4} \end{array}$$

16 32 48 64 80 96 112 128

59 − 48 = 11

118 − 112 = 6

37.4

(3)

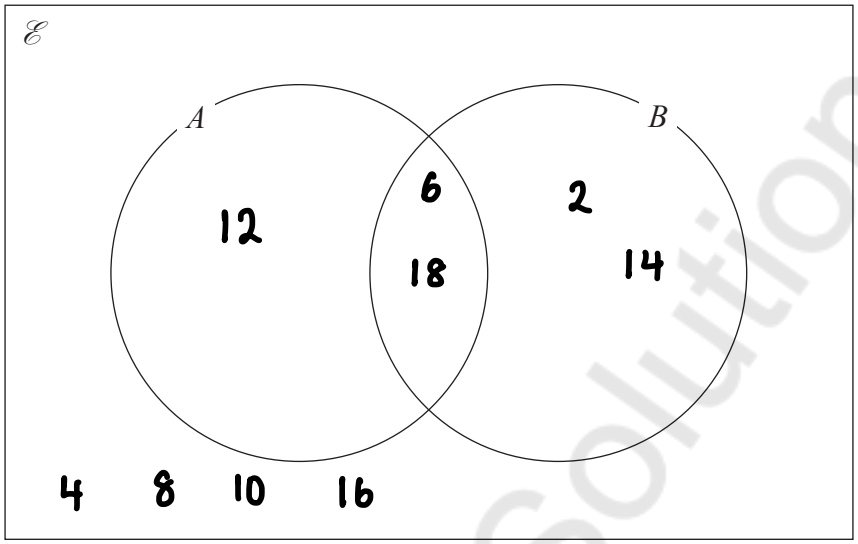
(Total for Question 20 is 6 marks)

21 $\mathscr{E}$ = {even numbers less than 19} = [2, 4, 6, 8, 10, 12, 14, 16, 18]

A = {6, 12, 18}

B = {2, 6, 14, 18}

Complete the Venn diagram for this information.



(Total for Question 21 is 3 marks)

22 Work out $4\frac{1}{5} - 2\frac{2}{3}$

Give your answer as a mixed number.

$4\frac{1}{5}^{\times 3} - 2\frac{2}{3}^{\times 5}$

$4\frac{1}{5}_{\times 3} - 2\frac{2}{3}_{\times 5}$

$4\frac{3}{15} - 2\frac{10}{15}$

LCM of 5 and 3 = 15

5 10 (15) 20 ...

3 6 9 12 (15) ...

$4 - 2 = 2$

$\frac{3}{15} - \frac{10}{15} = -\frac{7}{15}$

$2 - \frac{7}{15}$

$\frac{30}{15} - \frac{7}{15} = \frac{23}{15} = 1\frac{8}{15}$

$1\frac{8}{15}$

(Total for Question 22 is 3 marks)

23 At the end of 2017

the value of Tamara's house was £220 000
the value of Rahim's house was £160 000

At the end of 2019

the value of Tamara's house had decreased by 20%
the value of Rahim's house had increased by 30%

At the end of 2019, whose house had the greater value?
You must show how you get your answer.

Tamara

2017 : £220,000

2019 : 20% of £220,000

×2 { 10% = £22000 } ×2
{ 20% = £44000 }

2'1'0,000
- 44,000
£176,000

Rahim

2017: £160,000

2019 : 30% of £160,000

×3 { 10% = £16,000 } ×3
{ 30% = £48,000 }

'160,000
+ 48,000
£208,000

Rahim's £208,000 > £176,000

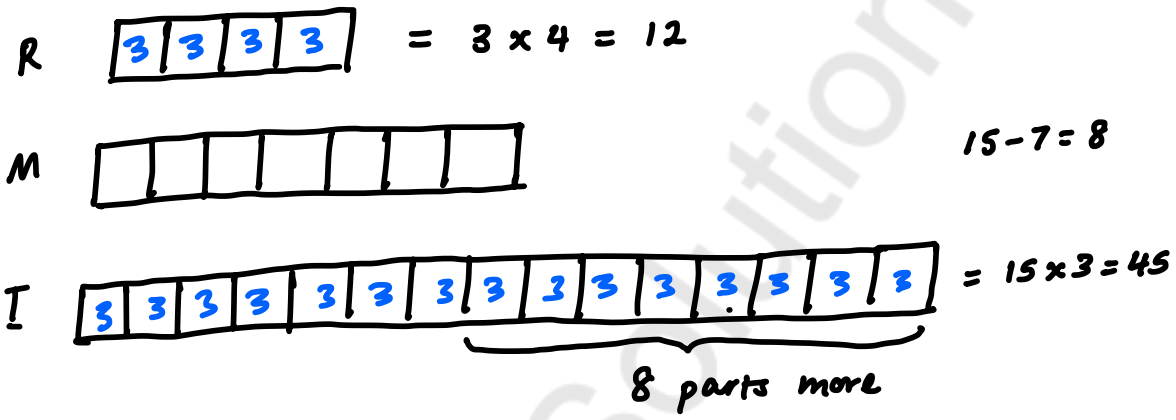
(Total for Question 23 is 4 marks)

24 Rosie, Matilda and Ibrahim collect stickers.

$$\frac{\text{number of stickers Rosie has}}{} : \frac{\text{number of stickers Matilda has}}{} : \frac{\text{number of stickers Ibrahim has}}{} = 4:7:15$$

Ibrahim has 24 more stickers than Matilda.

Ibrahim has more stickers than Rosie.
How many more?



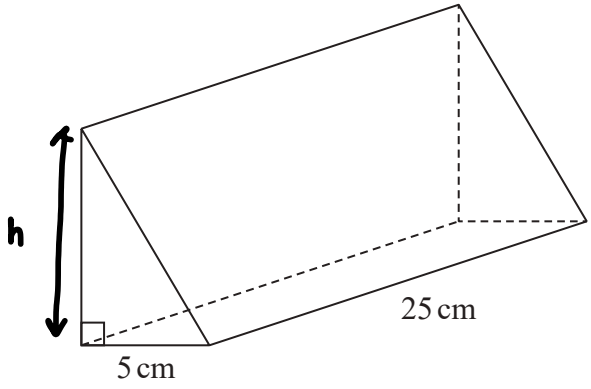
÷8 (8 parts = 24 stickers) ÷8
1 part = 3 stickers

45 − 12 = 23 stickers more

23

(Total for Question 24 is 3 marks)

25 The diagram shows a prism.



The cross section of the prism is a right-angled triangle.
The base of the triangle has length 5 cm

$\rightarrow A = \frac{1}{2}bh$

The prism has length 25 cm
The prism has volume 750 cm^3

Work out the height of the prism.

Vol = area cross-section × length

$= \frac{1}{2}bh \times l$

$= \frac{1}{2} \times 5 \times h \times 25$

$750 = \frac{1}{2} \times 125 \times h$

$\times 2 \qquad \times 2$

$1500 = 125 \times h$

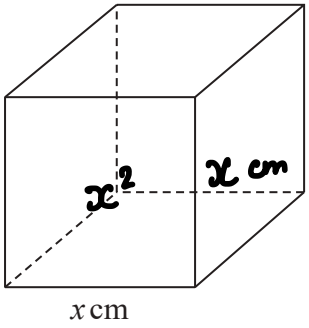
$\div 125 \qquad \div 125$

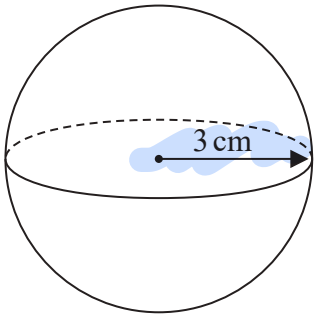
$20 = h$

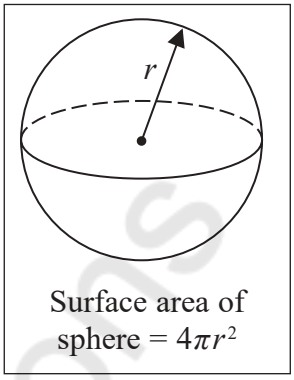
20 cm

(Total for Question 25 is 3 marks)

26 The diagram shows a cube with edges of length x cm and a sphere of radius 3 cm.







The surface area of the cube is equal to the surface area of the sphere.

Show that $x = \sqrt{k\pi}$ where k is an integer.

S.A. of cube = $6 \times x^2$

$= 6x^2$ cm^2

S.A. of sphere = $4\pi r^2$

$6x^2 = 4\pi r^2$ $\quad r = 3$

$6x^2 = 4\pi(3)^2$

$6x^2 = 4\pi(9)$

$6x^2 = 36\pi$

$\div 6 \qquad \div 6$

$x^2 = \frac{36\pi}{6}$

$x^2 = 6\pi$

$\sqrt{\quad} \qquad \sqrt{\quad}$

$x = \sqrt{6\pi}$ $\quad k = 6$

(Total for Question 26 is 4 marks)

27 Freddie measured the length of a pencil as 7.2 cm correct to 1 decimal place.

Complete the error interval for the length, p cm, of the pencil.

$\frac{1}{10}$ or 0.1

$0.1 \div 2 = 0.05$

$7.2 + 0.05 = 7.25$

$7.2 - 0.05 = 7.15$

7.15 $\leqslant p <$ 7.25

(Total for Question 27 is 2 marks)

28 The equation of a straight line **L** is $y = 3 - 4x$

(i) Write down the gradient of **L**.

$y = mx + c$
↑
gradient

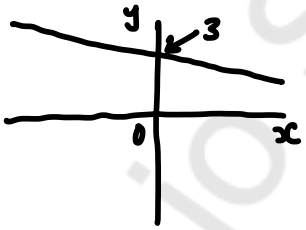
-4

(1)

(ii) Write down the coordinates of the point where **L** crosses the y-axis.

$y = mx + c$
↑
y-intercept

$c = 3$



(0 , 3)

(1)

(Total for Question 28 is 2 marks)

TOTAL FOR PAPER IS 80 MARKS

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