

AQA

GCSE

Mathematics

SET A – Paper 1 Foundation Tier

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Materials

Time allowed: 1 hour 30 minutes

For this paper you must have:

- mathematical instruments

You may **not** use a calculator.



Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Answer **all** questions.
- You must answer the questions in the space provided.
- In all calculations, show clearly how you work out your answer.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 80.
- You may use additional paper, graph paper and tracing paper.

Name:

Answer **all** questions in the spaces provided.

- 1 (a) Which of the following is **not** a factor of 8?

Circle your answer.

[1 mark]

1

2

4

6

8

- 1 (b) Which of the following is **not** a prime number?

Circle your answer.

[1 mark]

2

7

11

23

27

- 1 (c) Which of the following is a multiple of 7?

Circle your answer.

[1 mark]

30

35

40

45

50

- 2 Work out 4^2

Circle your answer.

[1 mark]

4.2

8

16

24

42

3 Expand $2(x + 4)$

Circle your answer.

[1 mark]

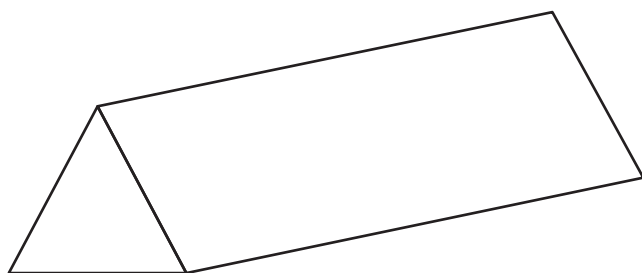
$2x + 8$

$2x + 6$

$4x + 2$

$2x + 4$

4



4 (a) Give the mathematical name for this 3-D shape.

[1 mark]

Answer

4 (b) Which statements are correct for this shape?

[1 mark]

Tick **two** boxes.

It has 6 faces

☐

It has 6 vertices

☐

It has 6 edges

☐

It has 9 edges

☐

It has 5 vertices

☐

5 Write $2\frac{3}{4}$ as an improper fraction.

Circle your answer.

[1 mark]

$\frac{7}{4}$

$\frac{9}{4}$

$\frac{11}{4}$

$\frac{23}{4}$

$\frac{24}{4}$

- 6 Harry has £1.25 and Jim-Bob has 75p.

Write this as a ratio in its simplest form.

[2 marks]

Answer _____ :

- 7 (a) Write down the next term in the sequence.

1 1 2 3 5 8

[1 mark]

Answer _____

- 7 (b) A pattern is made using matchsticks.

Pattern 1



Pattern 2



Pattern 3



How many matchsticks will be needed to make the 50th pattern?

[3 marks]

Answer _____

- 8 Molly is thinking of a number.

She squares it and then adds 15.

She gets an answer of 64.

What number was Molly thinking of?

[2 marks]

Answer

- 9 Dave needs 40 tennis balls for his coaching session.

The sports shop sells individual balls for 48p each **or** packs of 3 balls for £1.25

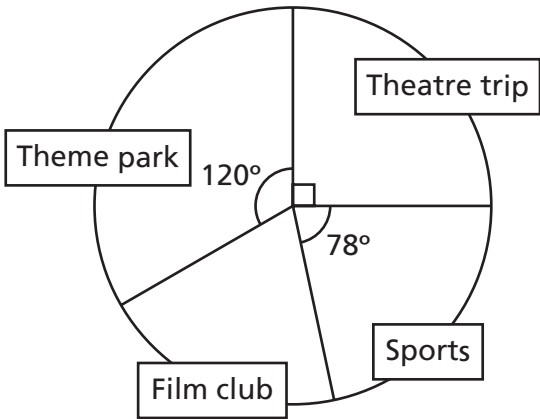
What is the least amount Dave could spend to get 40 tennis balls?

[4 marks]

Answer £

10 468 students were asked to pick an activity for an enrichment day at college.

The pie chart shows the activities which the students chose.



10 (a) How many students chose the theatre trip?

[2 marks]

.....

.....

Answer

10 (b) What percentage of students chose the film club?

[3 marks]

.....

.....

.....

.....

Answer%

11 (a) Solve $\frac{x}{5} = 3$

[1 mark]

Answer

11 (b) Solve $3x - 5 \leq 4$

[2 marks]

.....

.....

Answer

11 (c) Simplify $\frac{12x^5}{3x^2}$

[2 marks]

.....

.....

Answer

12 The **unordered** stem and leaf diagram shows the number of views that each of Jessica’s videos have received online.

9	4 3 8
10	7 5 6 7 9
11	3 0 4 1 2 8 7
12	6 1 5 6 1
13	9 8 8

Key:

10	7
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 means 107 views

12 (a) How many videos has Jessica uploaded?

[1 mark]

Answer

12 (b) Find the range of views her videos have had.

[2 marks]

.....

.....

Answer: Range =

12 (c) Find the median number of views her videos have had.

[2 marks]

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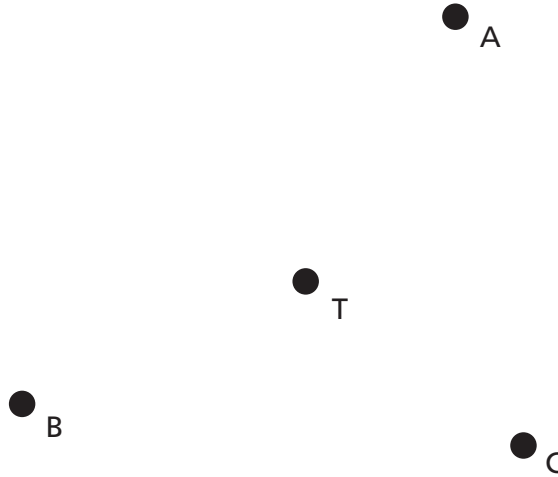
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Answer: Median =

- 13 The diagram shows three aeroplanes A, B and C circling an airport tower (T).



Scale :
2 cm = 1 km



- 13 (a) Find the bearing of aeroplane C from the tower.

[1 mark]

Answer°

- 13 (b) How far is aeroplane B from the tower?

[1 mark]

Answer km

- 13 (c) A fourth aeroplane (D) approaches the tower on a bearing of 290°

At 10:04 am it will be exactly 2.2 km from the tower.

Mark this position on the diagram and label it D.

[2 marks]

14 Rachel is at the gym for 2 hours.
She spends $\frac{2}{5}$ of her time on the weights.
The rest of her time is spent running and cycling in the ratio of 4 : 5
How many minutes does she spend cycling?

[4 marks]

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Answer minutes

15 (a) A plectrum is a tool used to pluck the strings of musical instruments such as guitars.
A machine can make 53 plectrums in 5.8 minutes.
Estimate the number of plectrums the machine can make in a day.

[2 marks]

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Answer

15 (b) State any assumptions that you have made.

[1 mark]

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- 16** Ethan, Benjamin and Josue toss a bottle and try to land it upright.

Here are the results.

	Ethan	Benjamin	Josue
Number of tries	10	25	50
Number of lands	1	3	4

- 16 (a)** Who is the best at the game?

Give a reason to support your claim.

[2 marks]

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- (b)** Whose results give you a better understanding of their ability?

Give a reason for your decision.

[2 marks]

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.....

- 17 (a)** Work out $\frac{2}{5} + \frac{1}{3}$

[2 marks]

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Answer

(b) Work out $\frac{9}{2} \div 6$

[2 marks]

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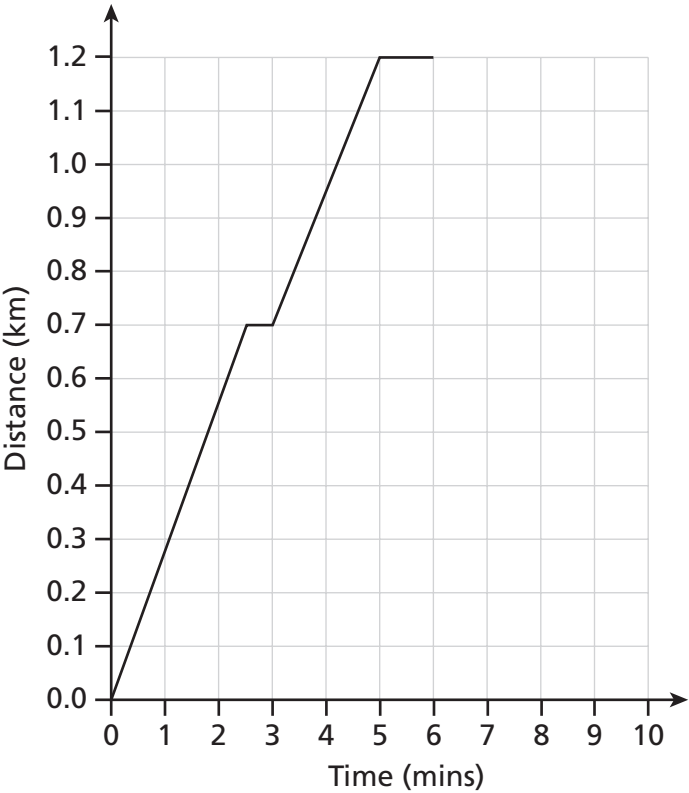
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Answer

18 Tim cycles up the road to test out his new bike.

He stops on the way to adjust his brakes and then rests at the end of the road before cycling back.

The graph shows the first part of his journey.



18 (a) How long did he spend adjusting his brakes?

[1 mark]

Answer

18 (b) What is his average speed from home to the end of the road?

[2 marks]

.....

.....

.....

Answer m/s

18 (c) He cycles back at 6 m/s.

Complete the graph to show the journey home.

[3 marks]

19 Claire, Michelle and Dorata each have some marbles.

Michelle has 4 times as many as Claire.

Dorata has 12 more than Claire.

Together, Claire and Michelle have the same amount as Dorata.

How many marbles does Claire have?

[3 marks]

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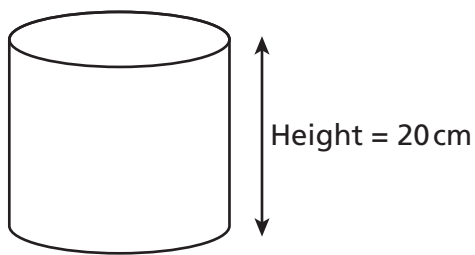
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Answer

- 20 The exact volume of the cylinder is $320\pi \text{ cm}^3$



Find the diameter of the cylinder.

[4 marks]

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Answer

- 21 The table shows the population of some countries, given in standard form.

Country	Population
Japan	1.3×10^8
France	6.58×10^7
China	1.4×10^9
UK	6.6×10^7
US	3.2×10^8
Egypt	9.6×10^7

- 21 (a) Write the population of Egypt as an ordinary number.

[1 mark]

Answer

- 21 (b) List the countries in order of their population size from smallest to largest.

[2 marks]

.....

.....

Answer

- 21 (c) Given that the population of the UK has been rounded to 2 significant figures, write down the error interval for the actual size of its population.

[2 marks]

Error interval: $\leq$ Population of UK $\leq$

- 22 The running time of a new Japanese feature film is reduced by 20% in order to cater for showing in American cinemas.

The film is now 100 minutes long.

How long was the original film?

[2 marks]

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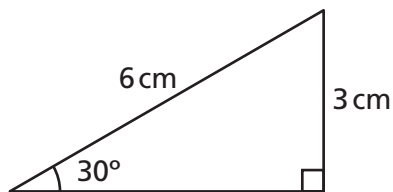
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Answer minutes

- 23 (a) Use the triangle to find the exact value for $\sin 30^\circ$

[1 mark]

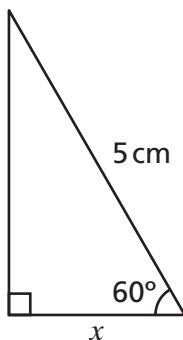


Not drawn
accurately

$\sin 30^\circ =$

- 23 (b) Find the length of the missing side marked x .

[3 marks]



Not drawn
accurately

.....

.....

.....

$x =$ cm

- 24 The probability that Leah will win her tennis match is 5^{-1}

Find the probability that she will **not** win.

Give your answer in the form $\frac{a}{b}$

[2 marks]

.....

.....

Answer

END OF QUESTIONS