

GCSE MATHEMATICS

Name:

Practice Paper Foundation 1

Maximum marks: 80

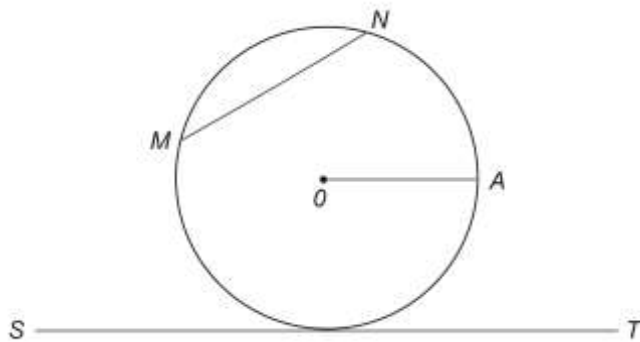
Non-Calculator

Time allowed: 1 hour and 30 minutes

These questions are from past papers covering topics and skills based on the advance information to help you prepare for the exams this summer.

Answer all questions in the spaces provided. You must **not** use a calculator.

- 1 O is the centre of the circle.



Circle the word to complete each sentence.

- (a) The line OA is a

chord circumference diameter radius tangent

(1)

- (b) The line ST is a

chord circumference diameter radius tangent

(1)

(Total 2 marks)

2 How many millimetres are there in 7.5 centimetres?

Circle your answer.

0.75

70.5

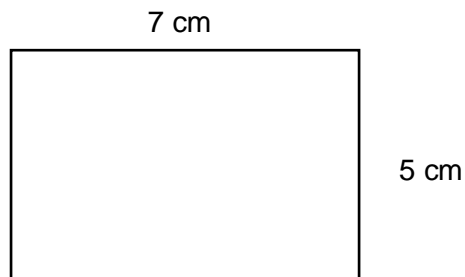
75

750

7500

(Total 1 mark)

3 Here is a rectangle.



Not drawn accurately

Work out the perimeter.

Circle your answer.

12 cm

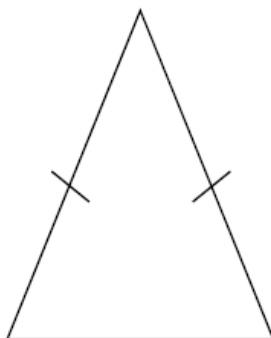
24 cm

35 cm

70 cm

(Total 1 mark)

4 This triangle is drawn accurately.



What type of triangle is it?

Tick **two** boxes.

acute-angled

obtuse-angled

equilateral

isosceles

scalene

(Total 1 mark)

5 Work out $23.7 - 2.5 \times 8$

Answer _____

(Total 2 marks)

6 Given that $P = 3e + 5f$
work out the value of P when $e = 4$ and $f = -2$

Answer _____

(Total 2 marks)

7 The table shows the number of desktop computers and laptops in 50 households.

		Desktop computers			
		0	1	2	3
Laptops	0	0	6	1	0
	1	5	10	4	4
	2	1	8	5	0
	3	3	2	1	0

(a) How many households have two laptops?

Answer _____

(1)

(b) How many households have more laptops than desktop computers?

Answer _____

(2)

(Total 3 marks)

8 (a) Simplify fully 56 : 24

Answer _____ : _____

(2)

(b) Write the ratio 5 : 4 in the form $n : 1$

Answer _____ : _____

(1)

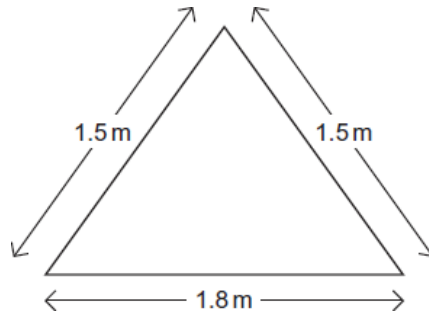
(c) Share £180 in the ratio 1 : 9

Answer £_____ and £_____

(2)

(Total 5 marks)

- 9 Jack is 1.28 metres tall.
He has a tent in the shape of a triangular prism.
The diagram shows the front view of the tent.



Not drawn accurately

The base of the tent has been drawn to scale below.

Complete the scale drawing to work out if Jack can stand up in the middle of the tent.
Show how you decide.

Scale: 1 cm represents 20 cm

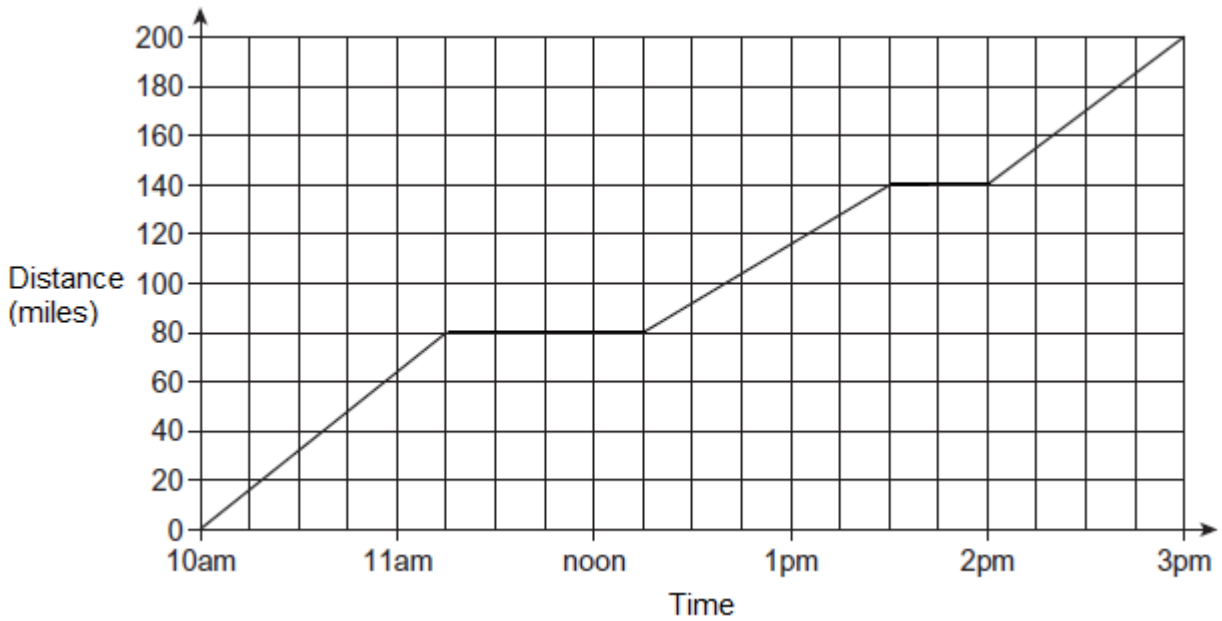
(Total 3 marks)

- 10 Three **whole** numbers are each rounded to the nearest 10.
The sum of the rounded numbers is 70.
Work out the **maximum** possible sum for the original three numbers.

Answer _____

(Total 2 marks)

14 The distance-time graph represents a journey Alf makes.



Alf claims that he stopped for less than one-quarter of his total journey time.

Is he correct?

You **must** show your working.

(Total 3 marks)

15 n is an integer.

List the values of n such that $-1 \leq n + 3 < 5$

Answer _____

(Total 2 marks)

16 The vector $\begin{pmatrix} -2 \\ 3 \end{pmatrix}$ translates A to B.

Circle the vector that translates B to A.

$\begin{pmatrix} -2 \\ 3 \end{pmatrix}$

$\begin{pmatrix} -3 \\ 2 \end{pmatrix}$

$\begin{pmatrix} 3 \\ -2 \end{pmatrix}$

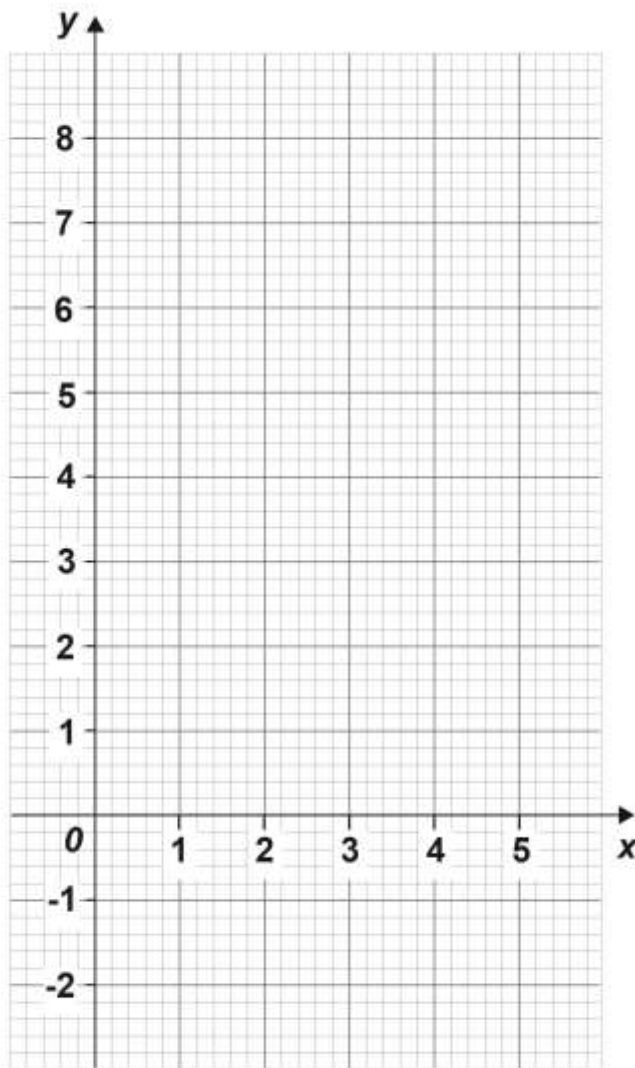
$\begin{pmatrix} 2 \\ -3 \end{pmatrix}$

(Total 1 mark)

17 Complete the table of values for $y = 8 - 2x$.

x	0	1	2	3	4	5
y		6		2		

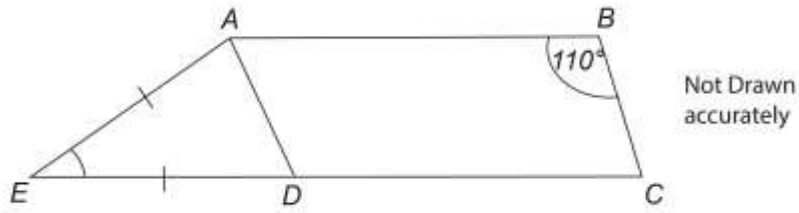
On the grid below draw the graph of $y = 8 - 2x$ for values of x between 0 and 5.



(Total 3 marks)

18 Trapezium $ABCE$ is made from parallelogram $ABCD$ and isosceles triangle ADE .

$$AE = DE$$

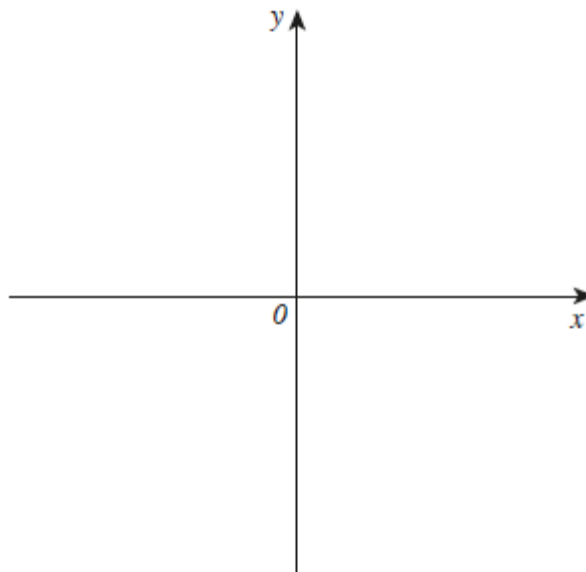


Work out the size of angle AED .

Answer = _____ degrees

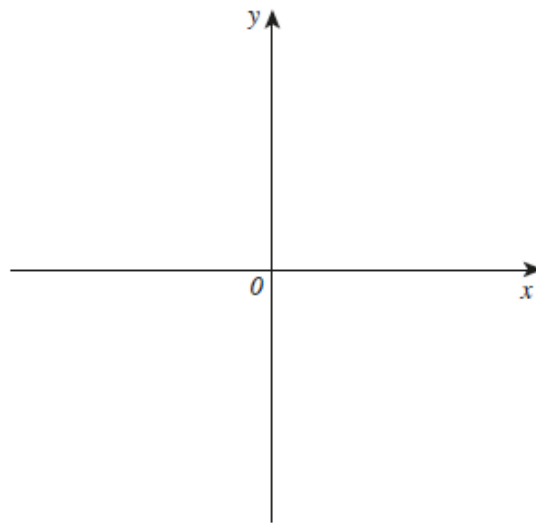
(Total 3 marks)

19 (a) Sketch the graph of $y = x^3$



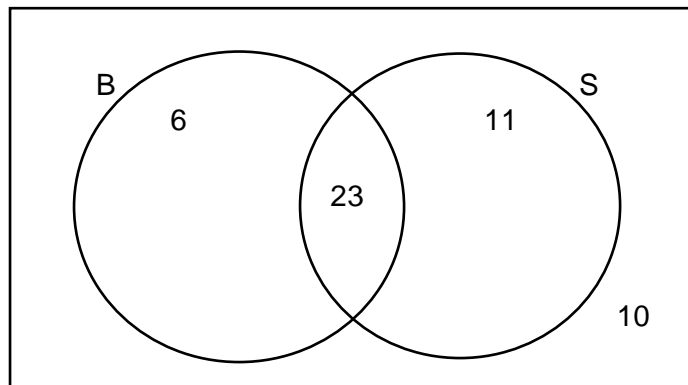
(1)

(b) Sketch the graph of $y = x^2 + 3$



(1)
(Total 2 marks)

- 20 Here is a Venn diagram.
It shows information about the number of students who have a bike or a skateboard.
Set B represents students with a bike.
Set S represents students with a skateboard.



There are 50 students altogether.

A student is chosen at random.

- (a) Work out the probability that the student has a bike.

Answer _____

(1)

- (b) Work out the probability that the student has a bike **and** a skateboard.

Answer _____

(1)

- (c) Complete the sentence to make it true.

The probability that the student _____

_____ is $\frac{11}{50}$

(1)

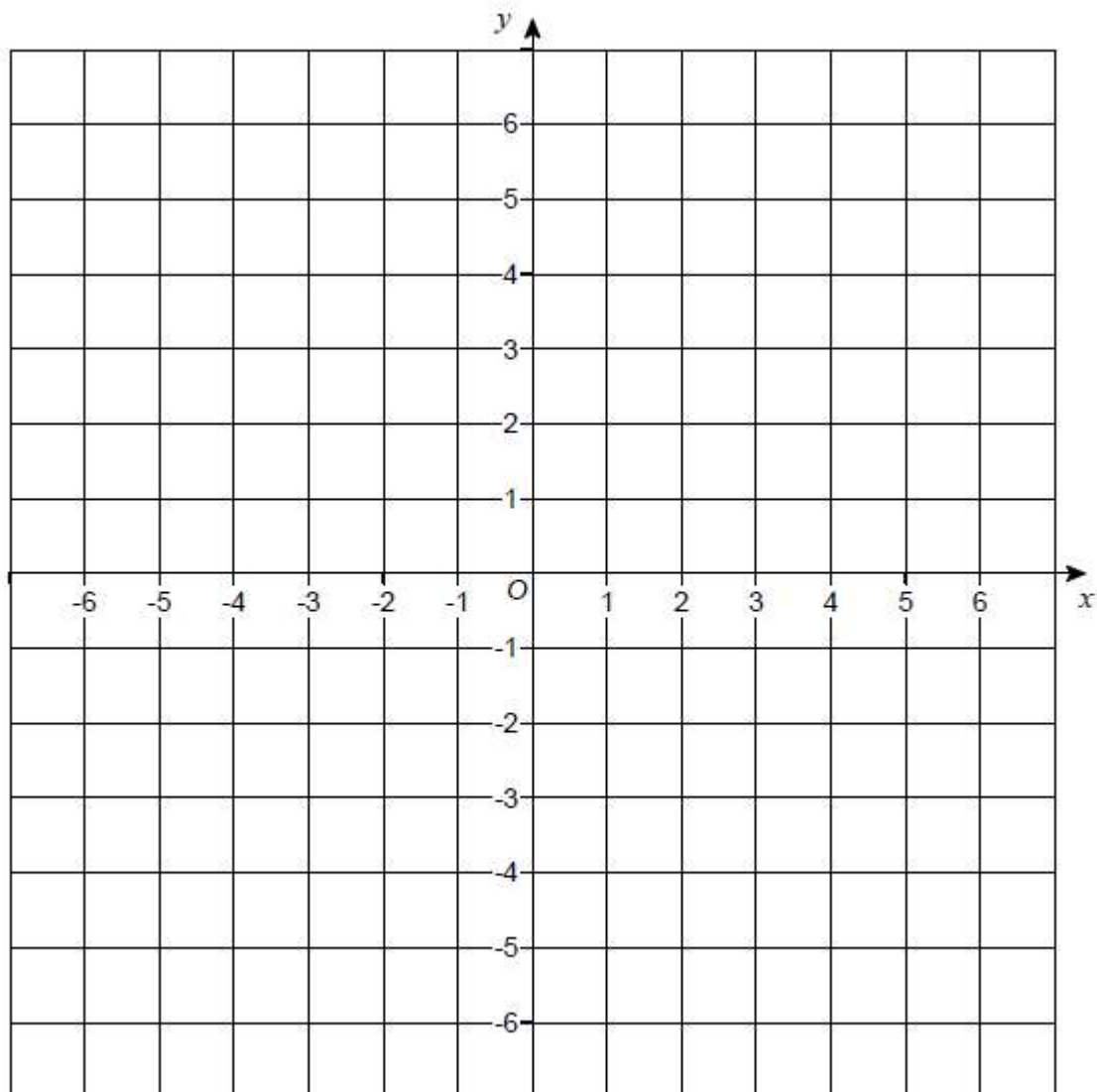
(Total 3 marks)

21 A straight line passes through the points $(-1, 2)$ and $(1, 6)$

Another straight line has equation $y = x$

Work out the coordinates of the point of intersection of the two lines.

You may use the grid to help you.



Answer (..... ,

(Total 4 marks)

22 In one month, the number of hours of exercise taken by 10 people are

4 7 2 8 6 5 1 82 3 9

Which is the appropriate average to use in this situation?

Tick a box.

Mean

Median

Mode

Give one reason for each of the other two averages as to why they are **not** appropriate.

Reason 1 _____

Reason 2 _____

(Total 2 marks)

23 (a) Cards in a pack are red or blue in the ratio

$$\text{red : blue} = 2 : 3$$

What fraction of the cards are **red**?

Circle your answer.

$$\frac{5}{6}$$

$$\frac{2}{3}$$

$$\frac{2}{5}$$

$$\frac{3}{5}$$

(1)

(b) A different pack has 72 cards.

$\frac{5}{9}$ are yellow.

Work out the number of yellow cards.

Answer _____

(2)

(Total 3 marks)

24 Work out $8\frac{1}{2} \div 2\frac{2}{3}$

Give your answer as a mixed number.

Answer _____

(Total 4 marks)

25 (a) Solve $5x + 3 = 3(x + 2)$

Answer $x =$ _____

(3)

(b) $2(x + 16) + 4(x - 5)$ simplifies to $a(x + b)$

Work out the values of a and b .

Answer $a =$ _____ , $b =$ _____

(3)

(Total 6 marks)

26 (a) Simplify $a^{20} \times a^5$

Answer _____

(1)

(b) Simplify $\frac{a^{20}}{a^5}$

Answer _____

(1)

(c) Simplify $(a^{20})^5$

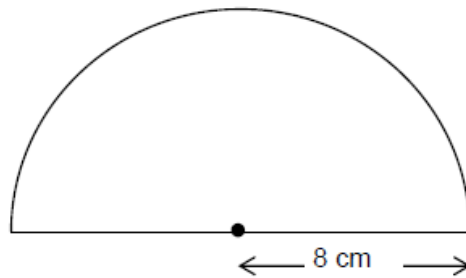
Answer _____

(1)

(Total 3 marks)

27 The diagram shows a semicircle of radius 8 cm

Not drawn accurately



Work out the area of the semicircle.

Give your answer in terms of π .

Answer _____ cm²

(Total 2 marks)

- 28 (a) A human cell nucleus has a diameter of 0.000 001 metres.
Write this number in standard form.

Answer _____

(1)

- (b) There are up to 5×10^{13} cells in a human body.
Write 5×10^{13} as an ordinary number.

Answer _____

(1)

- (c) A patient has a disease.
She has 4^3 body cells affected on day 1.
The number of affected cells doubles every day.
On which day does the patient have 2^{10} affected cells?
You **must** show your working.

Day _____

(3)

(Total 5 marks)