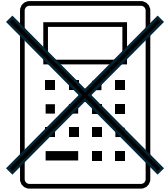


Surname:

Forename(s):

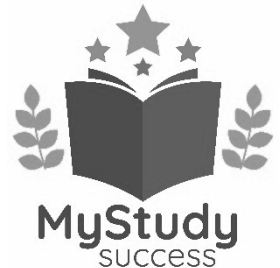
GCSE Mathematics – Foundation Tier

Paper 1 – Non Calculator



Practice Set B

ANSWERS



Materials

- **Formulae Sheet** (on the next page)
- **Black** ink or ball-point pen
- Pencil
- Eraser
- Protractor
- Compass
- Tracing Paper
- **No calculator allowed**

/40

Instructions

- Time allowed: **45 minutes**.
- The total mark for this paper is **40**.
- Show **all** of your working.
- Draw diagrams in pencil.
- Plot graphs in pencil.
- Diagrams are **not** accurately drawn, unless otherwise indicated.
- Cross through any work you don't want to be marked

Foundation Tier Formulae Sheet

Perimeter, Area and Volume

Where a and b are the lengths of the parallel sides and h is their perpendicular separation:

Area of a trapezium = $\frac{1}{2} (a + b) h$

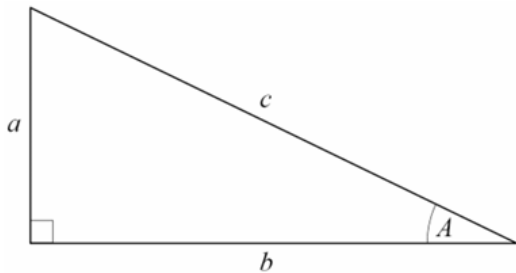
Volume of a prism = area of cross section $\times$ length

Where r is the radius and d is the diameter:

Circumference of a circle = $2\pi r = \pi d$

Area of a circle = πr^2

Pythagoras' Theorem and Trigonometry



In any right-angled triangle where a , b and c are the length of the sides and c is the hypotenuse:

$$a^2 + b^2 = c^2$$

In any right-angled triangle ABC where a , b and c are the length of the sides and c is the hypotenuse:

$$\sin A = \frac{a}{c} \quad \cos A = \frac{b}{c} \quad \tan A = \frac{a}{b}$$

Compound Interest

Where P is the principal amount, r is the interest rate over a given period and n is number of times that the interest is compounded:

$$\text{Total accrued} = P \left(1 + \frac{r}{100} \right)^n$$

Probability

Where $P(A)$ is the probability of outcome A

and $P(B)$ is the probability of outcome B :

$$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$$

$$P(A \text{ and } B) = P(A \text{ given } B) P(B)$$

1 Here are four numbers.

-9 **-4** **4** **9**

Write one of these numbers in each box to make a correct calculation.

$$\boxed{4} + \boxed{-9} = -5$$

OR $\boxed{-9} + \boxed{4} = -5$

(Total for question 1 is 1 mark)

2 Work out 40% of 90

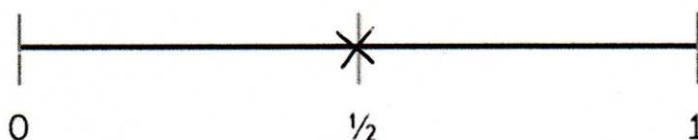
$$\begin{aligned} 100\% &= 90 \\ \div 10 \rightarrow 10\% &= 9 \rightarrow \div 10 \\ \times 4 \rightarrow 40\% &= 36 \rightarrow \times 4 \end{aligned}$$

36

(Total for question 2 is 2 marks)

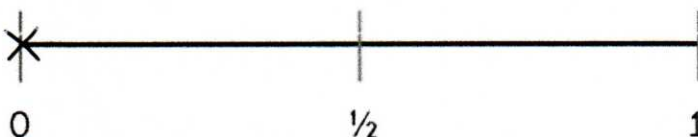
3 Lola rolls a fair 6-sided dice.

(i) On the probability scale below, mark with a cross (x) the probability that Lola will roll an odd number.



(1)

(ii) On the probability scale below, mark with a cross (x) the probability that Lola will roll a number greater than 10.



(1)

(Total for question 3 is 2 marks)

- 4 Rehan wants to work out $5680 \div 5$

He knows that $5680 \div 10 = 568$

Rehan writes $5680 \div 5 = 284$

because $10 \div 5 = 2$

and $568 \div 2 = 284$

What mistake did Rehan make in his method?

He should have done 568×2 .

(Total for question 4 is 1 mark)

- 5 Stephen works for a bakery.

His normal rate of pay is £15 per hour.

When Stephen works more than 8 hours a day, he is paid overtime for each extra hour that he works.

Stephen's rate of overtime pay is $1\frac{2}{5}$ times his normal rate of pay per hour.

On Monday, Stephen worked for 10 hours.

Work out the total amount of money Stephen earned on Monday.

$\begin{matrix} \textcircled{\times} \\ \textcircled{\div} \end{matrix} \frac{7}{5} \text{ of } 15 = (15 \div 5) \times 7 = 21$

Normal pay = £15 $\times$ 8 hours = £120

Over time pay = £21 $\times$ 2 hours = £42

$120 + 42 = 162$

£ 162

(Total for question 5 is 4 marks)

6 Here are two fractions.

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

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

$\frac{5}{6}$ is closer
to 1

Which of the fractions is closer to 1.

You must show all your working.

$$\frac{5}{6} \rightarrow 6 \overline{) 5.0000}$$

$$= 0.833$$

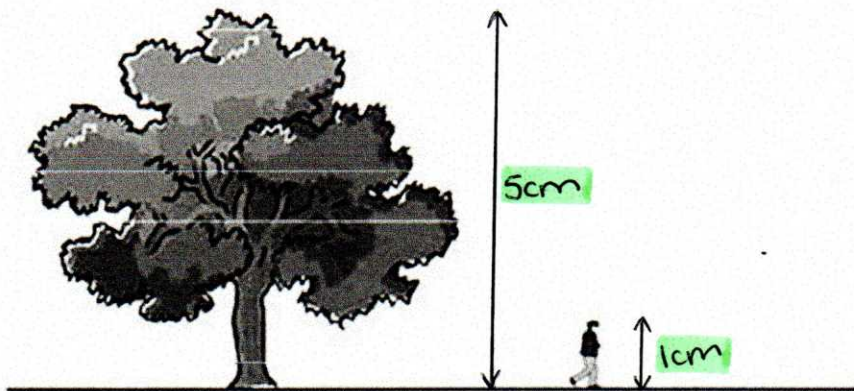
↑
closer to 1

$$\frac{6}{5} \rightarrow 5 \overline{) 6.0}$$

$$= 1.2$$

(Total for question 6 is 3 marks)

7 The diagram shows a tree and a man.



The man is of average height.

→ between 1.7-1.8 m

The tree and the man are drawn to the same scale.

(a) Write down an estimate for the real height, in metres, of the man.

1.7 m

range of answers from (1)
1.5m → 2m

(b) Find an estimate for the real height, in metres, of the tree

Scale factor 5

$$1.7 \times 5 = 8.5$$

8.5 m

range of answers from (2)
7.5m → 10m

(Total for question 7 is 3 marks)

$$\begin{array}{r} 17 \\ \times 5 \\ \hline 85 \end{array}$$

8 $v = u + at$

$u = 3 \quad a = -5 \quad t = \frac{1}{3}$

Work out the value of v

$$v = u + at$$

$$v = 3 + (-5)\left(\frac{1}{3}\right)$$

$$v = 3 - \frac{5}{3}$$

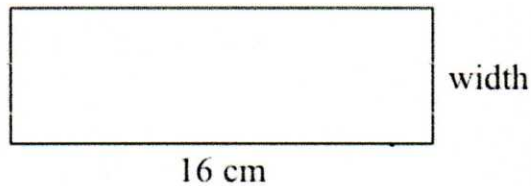
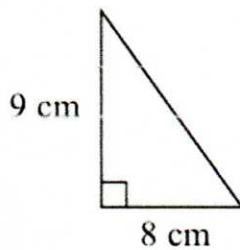
$$v = \frac{9}{3} - \frac{5}{3}$$

$$v = \frac{4}{3}$$

$$v = \frac{4}{3}$$

(Total for question 8 is 2 marks)

9 Here area triangle and a rectangle.



The area of the rectangle is 6 times the area of the triangle.

Work out the width of the rectangle.

$$\begin{aligned} \text{Area of rectangle} &= b \times h \\ &= 16 \times w \\ &= 16w \end{aligned}$$

$$\begin{aligned} \text{Area of triangle} &= \frac{b \times h}{2} \\ &= \frac{9 \times 8}{2} \\ &= 36 \end{aligned}$$

$$16w = 6 \times 36$$

$$16w = 216$$

 $\div 16$

$$w = 13.5$$

 $\div 16$

$$\begin{array}{r} 013.5 \\ 16 \overline{) 216.0} \end{array}$$

$$\underline{13.5} \text{ cm}$$

(Total for question 9 is 4 marks)

10 In a sale, the normal price of a toy car is reduced by 30%.

The sale price of the toy car is £2.80

Work out the normal price of the toy car.

$$\rightarrow 100\% - 30\% = 70\%$$

$$\begin{array}{l} \div 7 \left(\begin{array}{l} 70\% = \pounds 2.80 \\ 10\% = \pounds 0.40 \end{array} \right) \div 7 \\ \times 10 \left(\begin{array}{l} 100\% = \pounds 4.00 \end{array} \right) \times 10 \end{array}$$

£ 4

(Total for question 10 is 2 marks)

11 (a) Work out $\frac{2}{7} + \frac{1}{5}$

$$\frac{2}{7} + \frac{1}{5}$$

$$\frac{10}{35} + \frac{7}{35} = \frac{17}{35}$$

$$\frac{17}{35}$$

(2)

(b) Write down the value of 2^{-3}

$$2^{-3} = \frac{1}{2^3} = \frac{1}{8}$$

$$\frac{1}{8}$$

(1)

(Total for question 11 is 3 marks)

- 12 Ella is 7 years older than Karim.
 Seth is twice as old as Ella.
 The sum of their three ages is 77.

Find the ratio of Karim's age to Ella's age to Seth's age.

$$\text{Karim} = x$$

$$\text{Ella} = x + 7$$

$$\text{Seth} = 2(x + 7) = 2x + 14$$

$$x + x + 7 + 2x + 14 = 77$$

$$4x + 21 = 77$$

$$\begin{array}{r} 4x + 21 = 77 \\ -21 \quad -21 \\ \hline \end{array}$$

$$4x = 56$$

$$\begin{array}{r} 4x = 56 \\ \div 4 \quad \div 4 \\ \hline x = 14 \end{array}$$

$$\text{Karim} : \text{Ella} : \text{Seth}$$

$$x : x + 7 : 2x + 14$$

$$14 : 14 + 7 : 2(14) + 14$$

$$14 : 21 : 42$$

$$\downarrow (\div 7)$$

$$2 : 3 : 6$$

$$2 : 3 : 6$$

$$\text{OR } 14 : 21 : 42$$

(Total for question 12 is 4 marks)

- 13 Work out 34.6×7.2

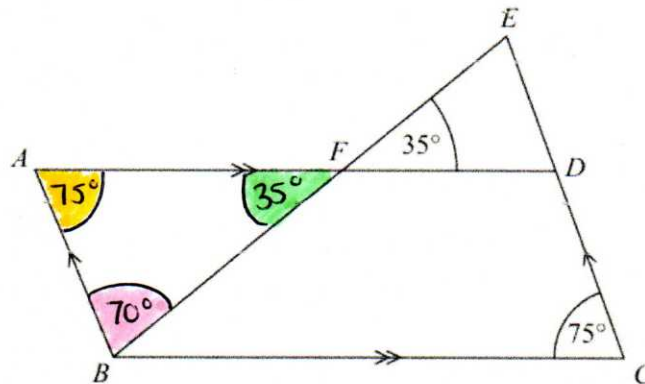
$$\begin{array}{r} 346 \\ \times 72 \\ \hline 692 \\ + 24220 \\ \hline 24912 \end{array}$$

$$= 249.12$$

$$249.12$$

(Total for question 13 is 3 marks)

14



ABCD is a parallelogram.

EDC is a straight line.

F is the point on AD so that BFE is a straight line.

Show that angle ABE = 70°

Give a reason for each stage of your working.

$\angle BAD = 75^\circ$ because opposite angles in a Parallelogram are equal.

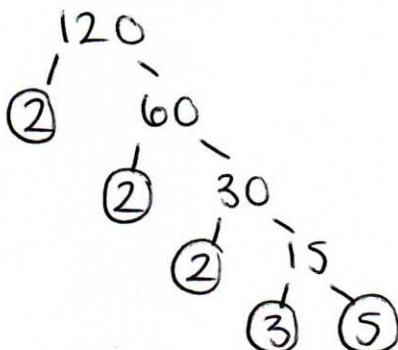
$\angle AFB = 35^\circ$ because vertically opposite angles are equal.

$\angle ABE = 70^\circ$ because angles in a triangle sum to 180° . $75 + 35 + 70 = 180$.

(Total for question 14 is 4 marks)

(there are lots of possible ways to get to this final answer)

15 Express 120 as a product of its prime factors



$$120 = 2 \times 2 \times 2 \times 3 \times 5$$

OR $\frac{2^3 \times 3 \times 5}{2 \times 2 \times 2 \times 3 \times 5}$
(Total for question 15 is 2 marks)

END OF TEST

TOTAL FOR THIS PAPER IS 40 MARKS