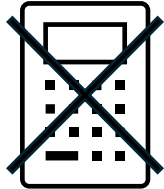


Surname:

Forename(s):

GCSE Mathematics – Foundation Tier

Paper 1 – Non Calculator



Practice Set C

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

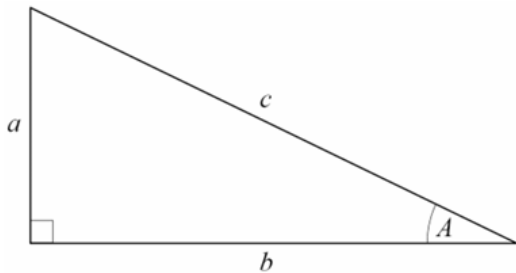
Volume of a prism = area of cross section $\times$ length

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

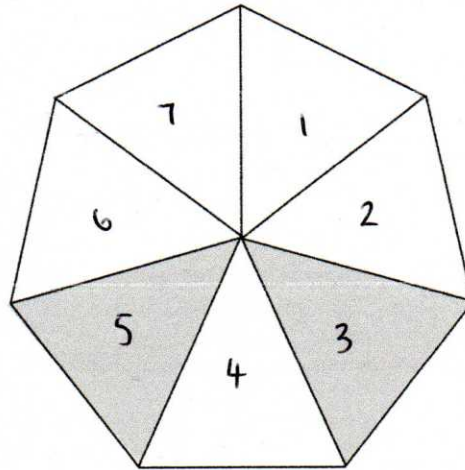
Where $P(A)$ is the probability of outcome A

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 What fraction of this shape is shaded?



$$\frac{2}{7}$$

(Total for question 1 is 1 mark)

2 Here is a list of numbers.

10 17 8 16 22 15 26

(a) Write down a number from the list which is an odd number.

17 OR 15
(1)

(b) Write down a number from the list which is a prime number.

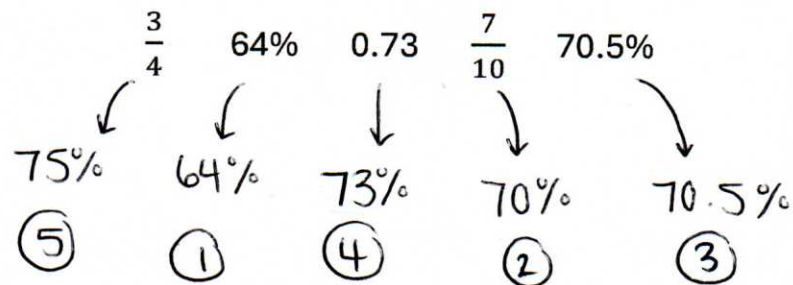
17
(1)

(c) Write down a number from the list which is a multiple of 4.

8 OR 16
(1)

(Total for question 2 is 3 marks)

3 Arrange the following in order from smallest to largest.



64%, $\frac{7}{10}$, 70.5%, 0.73, $\frac{3}{4}$

(Total for question 3 is 2 marks)

4 $x = -8$

$y = 4$

$$w = 3x - 2y$$

Work out the value of w .

$$w = 3(-8) - 2(4)$$

$$w = -24 - 8$$

$$w = -32$$

$$w = -32$$

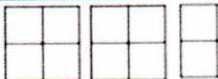
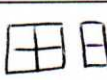
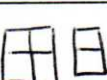
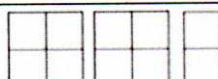
(Total for question 4 is 2 marks)

- 5 The pictogram shows the number of pies that Pete sold in his pie shop throughout the week.

Key:

2	2
2	2

 = 8 pies

Monday		20
Tuesday		14
Wednesday		8
Thursday		
Friday		
Saturday		20
Sunday		10

$$\begin{array}{r}
 20 \\
 + 14 \\
 + 8 \\
 + 20 \\
 + 10 \\
 \hline
 72
 \end{array}$$

(a) Given that:

- He sold a total of 96 pies during this week
- He sold half as many pies on Sunday as he did on Saturday
- He sold the same number of pies on Thursday and Friday

Complete the pictogram.

$$20 \div 2 = 10 \text{ (Sunday)}$$

$$96 - 72 = 24$$

$$24 \div 2 = 12 \text{ (Thursday and Friday)}$$

(4)

(b) Each pie is sold for a price of £6 each.

Work out the total price of all of the pies sold during this week.

$$96 \times 6 = 576$$

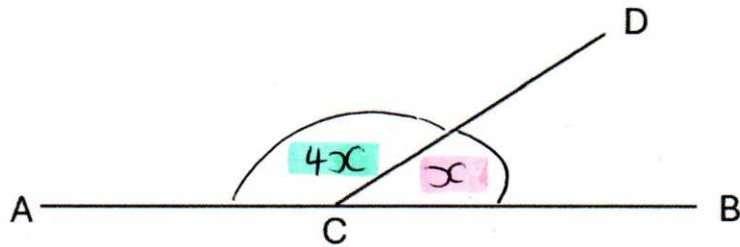
$$\begin{array}{r}
 96 \\
 \times 6 \\
 \hline
 576
 \end{array}$$

$$£ \underline{576}$$

(1)

(Total for question 5 is 5 marks)

6 ACB and CD are straight lines.



angle ACD = 4 x angle DCB

(a) Work out the size of angle ACD

$$x + 4x = 180 \quad \leftarrow \text{angles on a straight line sum to } 180^\circ.$$

$$5x = 180$$

÷5

$$x = 36$$

÷5

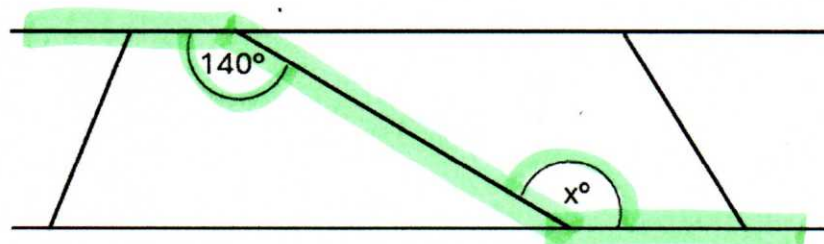
$$5 \overline{) 180} \begin{array}{r} 36 \\ 180 \\ \hline 0 \end{array}$$

$$4 \times 36 = 144$$

$$\begin{array}{r} 36 \\ \times 4 \\ \hline 144 \\ 2 \end{array}$$

$$144^\circ$$

(3)



(b) Work out the size of angle x and give reason for your answer.

$x = 140^\circ$ because alternate angles are equal

(2)

(Total for question 6 is 5 marks)

- 7 Benji is making a strawberry milkshake.
Here are the instructions that he is given.

Mix 3 parts blended strawberries
with 5 parts milk

Benji has 450ml of blended strawberries and 600ml of milk.

- (a) What is the greatest amount of strawberry milkshake that Benji can make using these instructions?

Use all blended Strawberries OR Use all milk

S : M

3 : 5

$\times 150 \swarrow \quad \searrow \times 150$

450 : 750

↑

not enough milk
 $750 > 600$

S : M

3 : 5

$\times 120 \swarrow \quad \searrow \times 120$

360 : 600

↑

enough blended strawberries
 $360 < 450$

$360 + 600 = 960$

960 ml
(3)

- (b) Benji blends some more strawberries. He now has a total of 600ml of blended strawberries. Does this affect your answer to part (a)?
Give reason for your answer.

No, because we only needed 360ml of blended strawberries for this mix. We already have enough.
OR, we can only make more if we had more milk.

(1)

(Total for question 7 is 4 marks)

8 (a) Work out $\frac{5^{12}}{5^9}$

Give your answer as a whole number.

$$\hookrightarrow 5^{12} \div 5^9$$

$$\hookrightarrow 5^{12-9}$$

$$\hookrightarrow 5^3 = 5 \times 5 \times 5 = 125$$

125

(2)

(b) Simplify $16 \times 2^{10} \times 2^8$

Give your answer as a power of 2.

$$\hookrightarrow 16 \times 2^{10} \times 2^8$$

$$\hookrightarrow 2^4 \times 2^{10} \times 2^8$$

$$\hookrightarrow 2^{4+10+8}$$

$$\hookrightarrow 2^{22}$$

2^{22}

(2)

(Total for question 8 is 4 marks)

9 The probability that Erin passes her maths test is 0.65

What is the probability that Erin does not pass her maths test?

$$1 - 0.65 = 0.35$$

0.35

or equivalent

(Total for question 9 is 2 marks)

10 (a) Solve $7w - 5 = 3w + 7$

$$7w - 5 = 3w + 7$$

$\textcircled{-3w}$ $\textcircled{-3w}$

$$4w - 5 = 7$$

$\textcircled{+5}$ $\textcircled{+5}$

$$4w = 12$$

$\textcircled{\div 4}$ $\textcircled{\div 4}$

$$w = 3$$

$$w = \underline{3}$$

(3)

(b) Solve $x^2 - 8x - 20 = 0$

$$x^2 - 8x - 20 = 0$$

$$(x - 10)(x + 2) = 0$$

$$x - 10 = 0$$

$\textcircled{+10}$ $\textcircled{+10}$

$$x = 10$$

$$x + 2 = 0$$

$\textcircled{-2}$ $\textcircled{-2}$

$$x = -2$$

$$\begin{array}{l} 1, 20 \\ \boxed{2, 10} \\ 4, 5 \end{array}$$

$$x = \underline{10 \text{ or } -2}$$

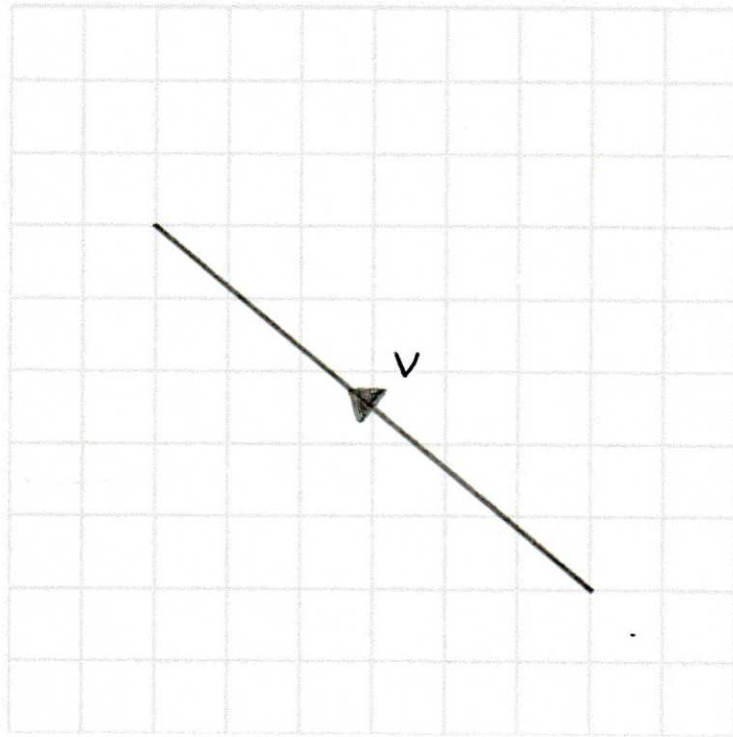
(3)

(Total for question 10 is 6 marks)

11 $v = \begin{pmatrix} -6 \\ 5 \end{pmatrix}$

$\begin{pmatrix} -6 \\ 5 \end{pmatrix}$ 6 left
5 up

On the grid below, draw the vector v .



(Total for question 11 is 1 mark)

- 12 The mean weight of a group of 5 people is 80kg.
 Another person who weighs 50kg joins the group.
 Work out the mean weight of the group of 6 people.

$$\begin{array}{l} \text{Total weight} \\ \text{of 5 people} \end{array} = 5 \times 80 = 400 \text{ kg}$$

$$\begin{array}{l} \text{Total weight} \\ \text{of 6 people} \end{array} = 400 + 50 = 450 \text{ kg}$$

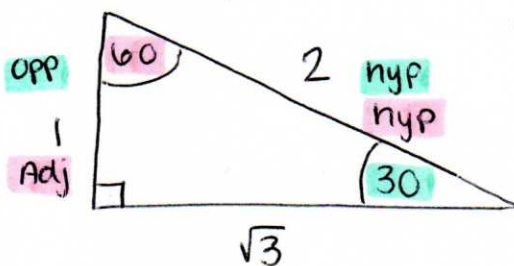
$$\begin{array}{l} \text{mean weight} \\ \text{of 6 people} \end{array} = \frac{450}{6} = 75 \text{ kg}$$

$$\begin{array}{r} 075 \\ 6 \overline{)450} \end{array}$$

$$\underline{\quad 75 \quad} \text{ kg}$$

(Total for question 12 is 3 marks)

- 13 Write down the exact value of $\cos 60^\circ + \sin 30^\circ$



$$\sin = \frac{\text{opp}}{\text{hyp}}$$

$$\sin 30 = \frac{1}{2}$$

$$\cos = \frac{\text{adj}}{\text{hyp}}$$

$$\cos 60 = \frac{1}{2}$$

$$\frac{1}{2} + \frac{1}{2} = 1$$

$$\underline{\quad 1 \quad}$$

(Total for question 13 is 2 marks)

END OF TEST

TOTAL FOR THIS PAPER IS 40 MARKS