
Year 10 Mathematics

Mock Test – Set 2

Time Allowed: 1 Hour 30 Minutes

Total Marks: 100

27 June 2026

Calculator Allowed

Full Name of Student:

1.

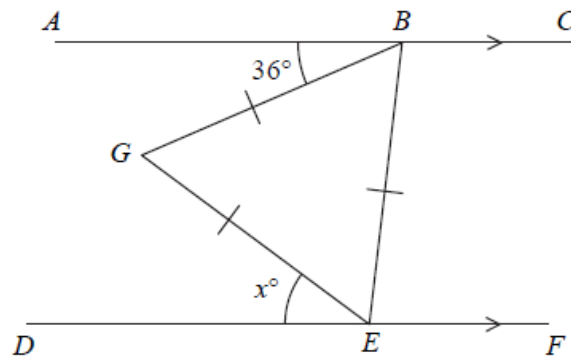


Diagram **NOT**
accurately drawn

ABC and DEF are parallel lines.
 BGE is an equilateral triangle.

Angle $ABG = 36^\circ$

Angle $DEG = x^\circ$

Work out the value of x .

Give reasons for your answer.

[Total for Question 1 = 4 marks]

2.

Two shops, Mega Bathrooms and Bathroom Mart, each have a sale.

Mega Bathrooms	Bathroom Mart
Sale	Sale
60% off normal price then 15% off	$\frac{2}{3}$ off normal price

Sally wants to buy some bathroom units.

The units have a normal price of £1500

Sally wants to buy the units as cheaply as possible.

Which shop should she buy the units from?

You must show all your working.

[Total for Question 2 = 4 marks]

3.

Mr Weaver's garden is in the shape of a rectangle.

In the garden

there is a patio in the shape of a rectangle
and two ponds in the shape of circles with diameter 3.8 m.

The rest of the garden is grass.

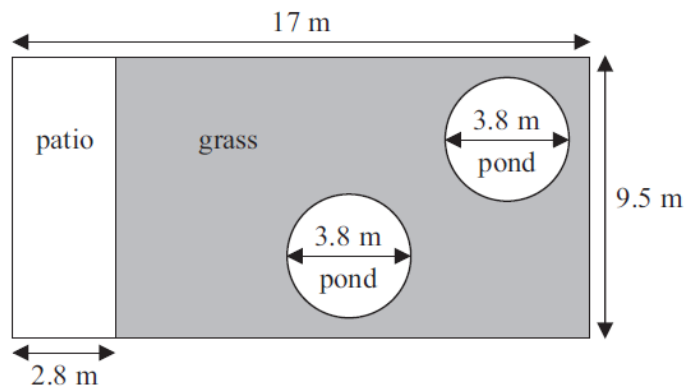


Diagram **NOT**
accurately drawn

Mr Weaver is going to spread fertiliser over all the grass.

One box of fertiliser will cover 25 m^2 of grass.

How many boxes of fertiliser does Mr Weaver need?

You must show your working.

.....

[Total for Question 3 = 4 marks]

4.

Herminia has a swimming pool in her garden.

The pool is empty.

The pool is in the shape of a cuboid that is 12 m long by 8 m wide.

She wants to fill the pool with water to a depth of 1.8 m.

Each hour, 3000 litres of water flows into the pool.

$1 \text{ m}^3 = 1000 \text{ litres}$

How long will it take to fill the pool to a depth of 1.8 m?

Give your answer correct to the nearest hour.

..... hours

[Total for Question 4 = 4 marks]

5.

Jess makes salad dressing by mixing lemon juice and olive oil in the ratio 2 : 5 by volume.
She uses 0.5 litres of lemon juice.

- (a) Work out how much olive oil she uses to make the salad dressing.

.....litres
(2)

Tiesto wants to make 630 millilitres of the salad dressing.
He mixes lemon juice and olive oil in the ratio 2 : 5 by volume.

- (b) Work out how much olive oil he uses to make the salad dressing.

.....millilitres
(2)

Salad dressing is made by mixing lemon juice and olive oil in the ratio 2 : 5 by volume.
The cost of lemon juice is \$13.50 per litre.
The cost of olive oil is \$18 per litre.

- (c) Work out the ratio

cost of lemon juice in the salad dressing : cost of olive oil in the salad dressing

Give your ratio in its simplest form.

.....
(3)

[Total for Question 5 = 7 marks]

6.

Peter has £20 000 to invest in a savings account for 2 years.

He finds information about two savings accounts.

Bonus Saver Compound interest 4% for the first year then 1.5% each year	Fixed Rate Compound interest 2.5% each year
--	--

Peter wants to have as much money as possible in his savings account at the end of 2 years.

Which of these savings accounts should he choose?

[Total for Question 6 = 4 marks]

7.

(a) Expand and simplify $(p + 9)(p - 4)$

.....
(2)

(b) Solve $\frac{5w - 8}{3} = 4w + 2$

$w =$
(2)

(c)

Simplify $(9x^8y^3)^{\frac{1}{2}}$

.....
(2)

[Total for Question 7 = 6 marks]

8.

Factorise

(a) $x^2 - 100$

.....
(1)

(b) $x^2 - x - 12$

.....
(2)

(c) $3x^2 + 7x + 2$

.....
(2)

[Total for Question 8 = 5 marks]

9.

The table shows information about the weights of 60 apples.

Weight (w grams)	Frequency
$160 < w \leq 164$	12
$164 < w \leq 168$	20
$168 < w \leq 172$	14
$172 < w \leq 176$	7
$176 < w \leq 180$	4
$180 < w \leq 184$	3

(a) Write down the modal class.

..... grams
(1)

(b) Work out an estimate for the total weight of the 60 apples.

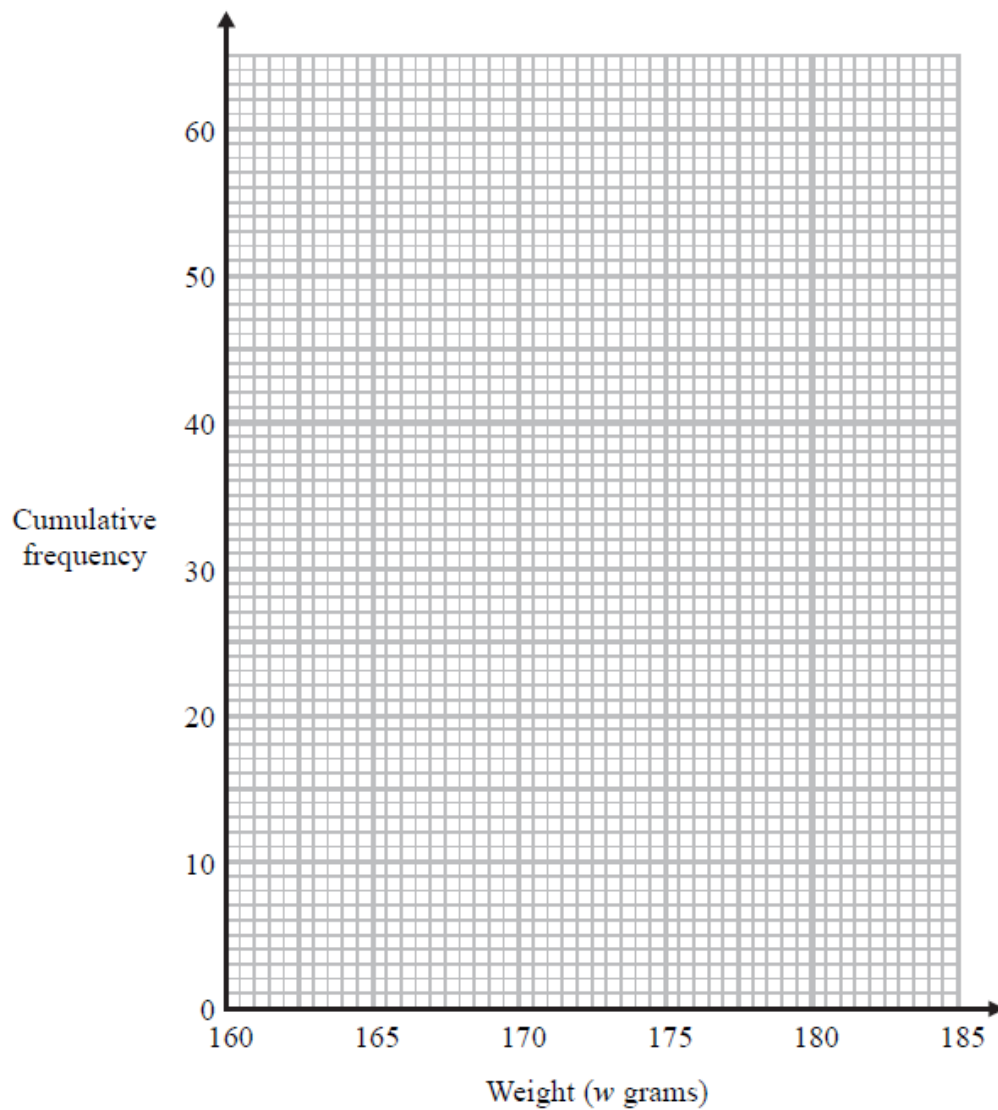
..... grams
(3)

(c) Using the table above, complete the cumulative frequency table.

Weight (w grams)	Cumulative frequency
$160 < w \leq 164$	
$160 < w \leq 168$	
$160 < w \leq 172$	
$160 < w \leq 176$	
$160 < w \leq 180$	
$160 < w \leq 184$	

(1)

(d) On the grid, draw a cumulative frequency graph for your table.



(2)

(e) Work out an estimate for the interquartile range.

..... grams
(2)

[Total for Question 9 = 9 marks]

10.

Make w the subject of the formula $p = \sqrt{\frac{w+4}{w-2}}$

[Total for Question 10 = 4 marks]

11.

Solve the simultaneous equations

$$7x - 2y = 41$$

$$4x + 3y = 11$$

Show clear algebraic working.

$$x = \dots\dots\dots$$

$$y = \dots\dots\dots$$

[Total for Question 11 = 4 marks]

12.

(a)

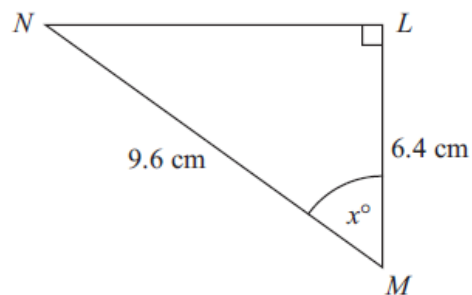


Diagram NOT
accurately drawn

LMN is a right-angled triangle.

$MN = 9.6$ cm.

$LM = 6.4$ cm.

Calculate the size of the angle marked x° .

Give your answer correct to 1 decimal place.

o

(2)

(b)

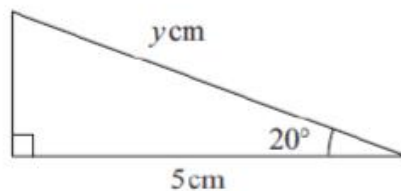


Diagram NOT
accurately drawn

Calculate the value of y .

Give your answer correct to 3 significant figures.

(2)

[Total for Question 12 = 4 marks]

13.

Expand the brackets and simplify,

(a) $(2 - 3\sqrt{3})(5 - 2\sqrt{3})$

.....
(2)

Rationalise the denominator:

(b)

$$\frac{2}{4 + \sqrt{7}}$$

.....
(2)

[Total for Question 13 = 4 marks]

14.

The diagram shows a right-angled triangle ABC .

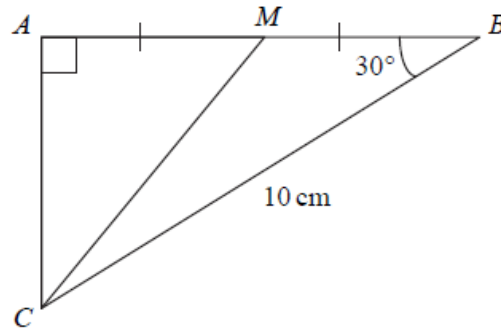


Diagram **NOT**
accurately drawn

$BC = 10 \text{ cm}$.

Angle $CAB = 90^\circ$

Angle $ABC = 30^\circ$

M is the midpoint of AB .

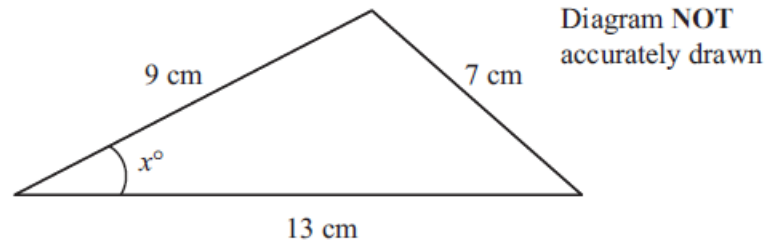
Work out the size of angle AMC .

Give your answer correct to 1 decimal place.

○

[Total for Question 14 = 4 marks]

15.



Calculate the value of x .
Give your answer correct to 1 decimal place.

$x =$

[Total for Question 15 = 3 marks]

16.

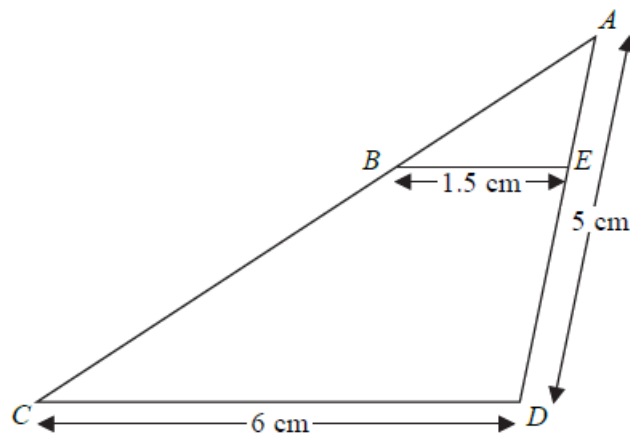


Diagram NOT
accurately drawn

ABC and AED are straight lines.

BE and CD are parallel.

$BE = 1.5$ cm.

$CD = 6$ cm.

$AD = 5$ cm.

(a) Prove that triangles ABE and ACD are similar triangles.

(3)

(b) Calculate the length of ED

(3)

[Total for Question 16 = 6 marks]

17.

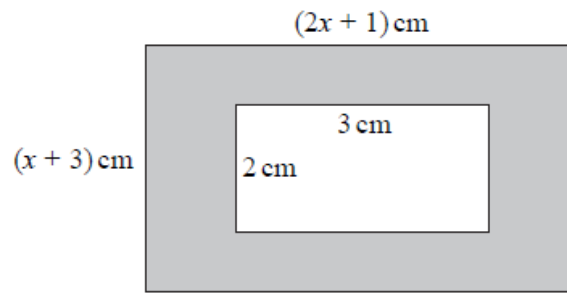


Diagram **NOT**
accurately drawn

The diagram shows a rectangular piece of card with length $(2x + 1)$ cm and width $(x + 3)$ cm.

A rectangle of length 3 cm and width 2 cm is cut out of the card.

The area of card that remains, shown shaded in the diagram, is 45 cm^2

(a) Show that $2x^2 + 7x - 48 = 0$

(2)

(b) Find the value of x .

Show your working clearly.

Give your value of x correct to 3 significant figures.

(3)

[Total for Question 17 = 5 marks]

18.

Yvonne has 10 tulip bulbs in a bag.

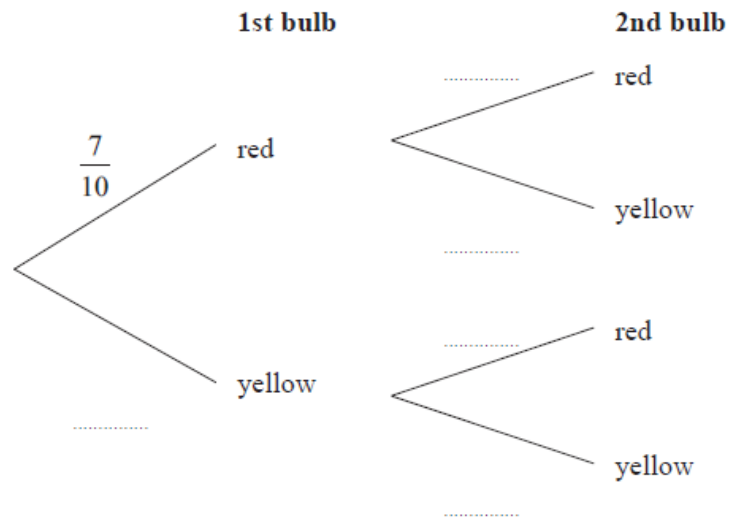
7 of the tulip bulbs will grow into red tulips.

3 of the tulip bulbs will grow into yellow tulips.

Yvonne takes at random two tulip bulbs from the bag.

She plants the bulbs.

(a) Complete the probability tree diagram.



(2)

(b) Work out the probability that at least one of the bulbs will grow into a yellow tulip.

(3)

[Total for Question 18 = 5 marks]

19.

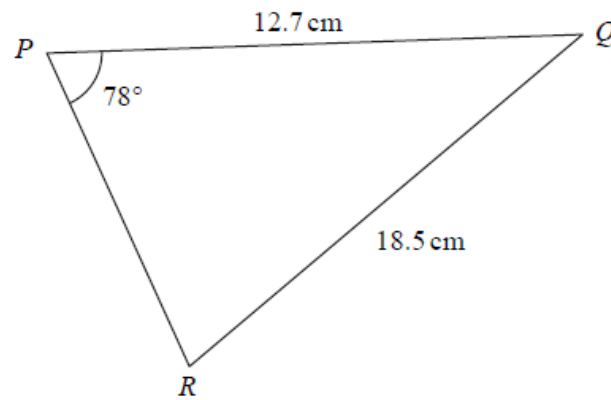


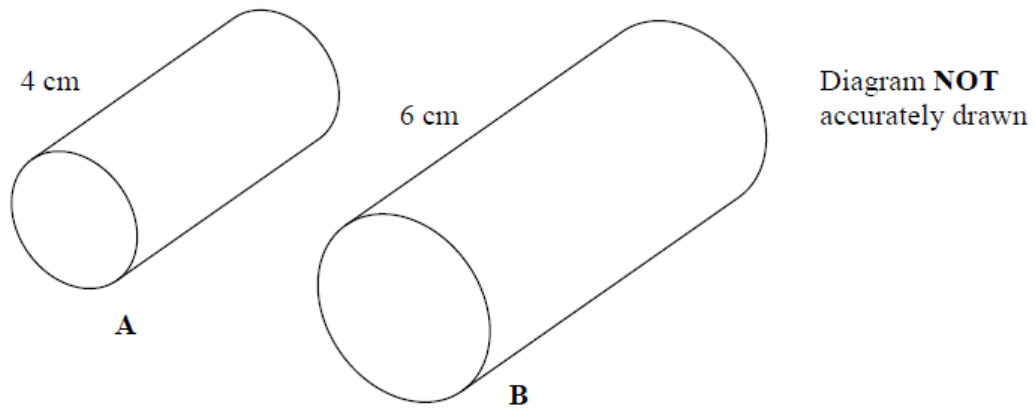
Diagram **NOT**
accurately drawn

Work out the area of triangle PQR .
Give your answer correct to 3 significant figures.

..... cm^2

[Total for Question 19 = 4 marks]

20.



Cylinder **A** and cylinder **B** are mathematically similar.
The length of cylinder **A** is 4 cm and the length of cylinder **B** is 6 cm.
The volume of cylinder **A** is 80 cm^3 .

Calculate the volume of cylinder **B**.

Volume = cm^3

[Total for Question 20 = 3 marks]

21.

Express $\frac{x-3}{2} - \frac{x+4}{3}$ as a single fraction.

Give your answer in its simplest form.

[Total for Question 21 = 3 marks]

Question 22 is on the next page.

22.

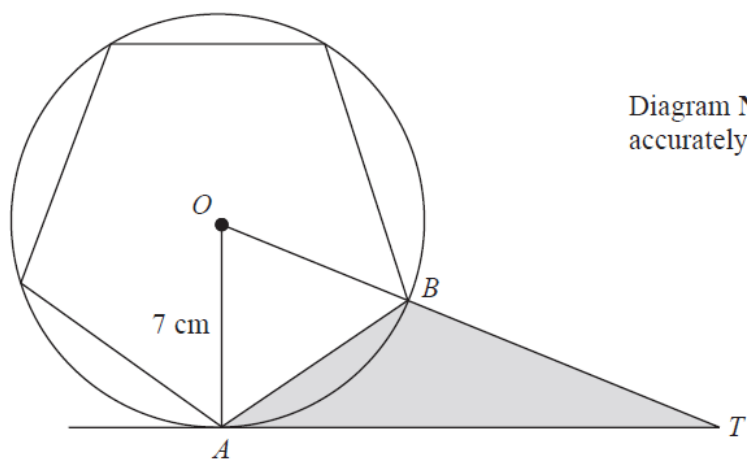


Diagram **NOT**
accurately drawn

The diagram shows a regular pentagon inside a circle, centre O .
The points A and B lie on the circle such that AB is a side of the pentagon.
 $OA = 7$ cm.
 TA is a tangent to the circle and OBT is a straight line.

Calculate the area of triangle ABT .
Give your answer correct to 3 significant figures.

..... cm²

[Total for Question 22 = 4 marks]

- End of Test -

