Name ..... Class .....

Calculator Crossover Paper 9

GCSE Mathematics · Foundation and Higher

40 marks · 45 minutes · Calculator

1 Use your calculator to work out $\dfrac{\sqrt{19.6 + 4.7^2}}{3.1 \times 0.85}$

(a) Write down all the figures on your calculator display.

..... **(2)**

(b) Write your answer to part (a) correct to 2 significant figures.

..... **(1)**

[Question 1: 3 marks]

2 The mass of a parcel is m kg.

$m = 7.4$ correct to 1 decimal place.

Complete the error interval for m.

..... $\leq m <$ ..... **(2)**

[Question 2: 2 marks]

3 Two lights on a stage flash at regular intervals.

The red light flashes every 75 seconds.

The green light flashes every 90 seconds.

At 9 pm exactly both lights flash at the same time.

At what time will both lights next flash at the same time?

..... **(2)**

[Question 3: 2 marks]

4 The diagram shows a solid prism made from centimetre cubes.

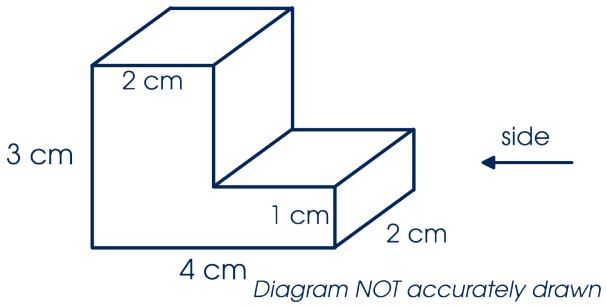


Diagram NOT accurately drawn

The front face of the prism is an L shape.

On the centimetre grid, draw the plan of the prism and the side elevation from the direction of the arrow.

(3)

[Question 4: 3 marks]

5 A statue stands on horizontal ground.

The statue exerts a force of 2750 newtons on the ground.

The base of the statue is a circle of radius 0.4 m.

$$\text{pressure} = \frac{\text{force}}{\text{area}}$$

Work out the pressure on the ground due to the statue.

Give your answer in newtons/m^2, correct to 1 decimal place.

..... newtons/m^2 **(2)**

[Question 5: 2 marks]

6 A farmer buys a new tractor for £42 000

The value of the tractor depreciates by 15% each year.

After how many years will the value of the tractor first be less than half of what the farmer paid for it?

You must show your working.

..... years **(3)**

[Question 6: 3 marks]

7 In a factory, 6 identical machines fill 4320 bottles in 15 minutes.
The factory manager needs 5040 bottles to be filled.
Only 4 of the machines can be used.
How long will it take 4 machines to fill 5040 bottles?
Give your answer in minutes and seconds.

..... **(3)**

[Question 7: 3 marks]

8 80 students in Year 10 and Year 11 each chose one trip.

The two-way table shows some information about their choices.

	Museum	Theatre	Zoo	Total
Year 10	12		9	38
Year 11		14		
Total	27		22	80

(a) Complete the two-way table.

(2)

(b) One of the students who chose the zoo is picked at random.

Write down the probability that this student is in Year 11.

..... **(1)**

(c) One of the Year 10 students is picked at random.

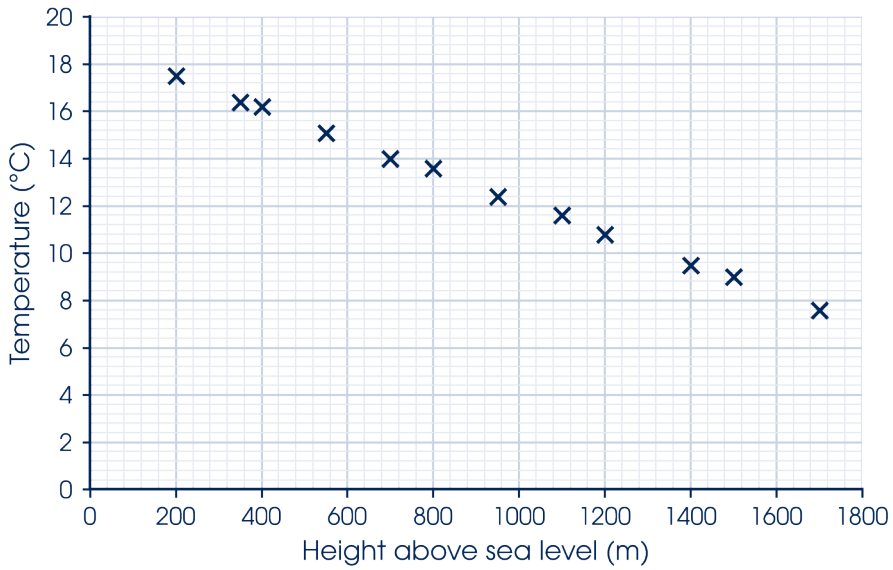
Write down the probability that this student chose the theatre.

..... **(1)**

[Question 8: 4 marks]

9 Nadia recorded the height above sea level and the temperature at 12 places on a mountain at the same time.

The scatter graph shows this information.



(a) Describe the relationship between the height above sea level and the temperature.

.....

(1)

(b) Estimate the temperature at a height of 1000 m above sea level.

..... °C

(2)

(c) Explain why it may not be reliable to use the scatter graph to estimate the temperature at a height of 3000 m above sea level.

.....

.....

(1)

[Question 9: 4 marks]

10 The diagram shows a lawn in the shape of a trapezium.

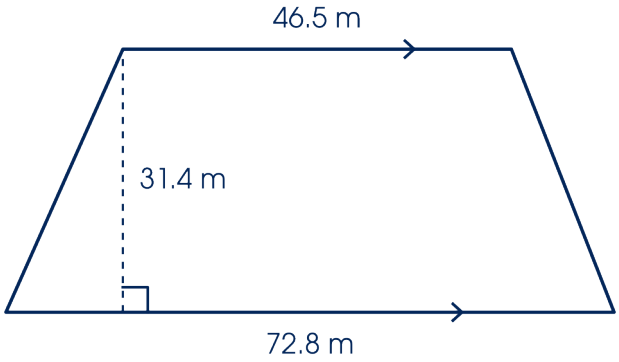


Diagram NOT accurately drawn

Ali is going to put fertiliser on the lawn.

One box of fertiliser covers 250 m^2 and costs £18.75

Work out the cost of buying enough boxes of fertiliser to cover the whole lawn.

You must show your working.

£ ..... **(4)**

[Question 10: 4 marks]

11 The lengths, in cm, of the sides of a triangle are $x + 3.2$, $2x$ and $3x - 1.4$

The perimeter of the triangle is 46.2 cm.

Work out the length of the longest side of the triangle.

..... cm **(4)**

[Question 11: 4 marks]

12 *ABCD* is a rectangle.

AC = 15.8 cm and *AB* = 12.3 cm.

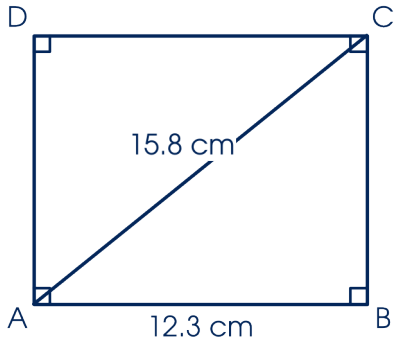


Diagram NOT accurately drawn

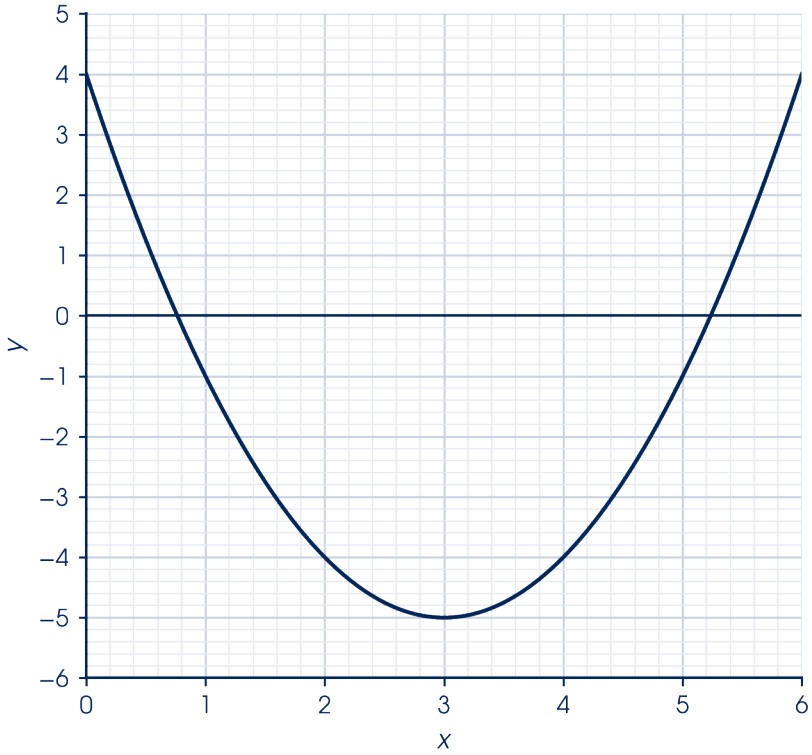
Work out the perimeter of the rectangle.

Give your answer correct to 1 decimal place.

..... cm **(3)**

[Question 12: 3 marks]

13 The graph of $y = x^2 - 6x + 4$ is drawn on the grid.



(a) Use the graph to estimate the solutions of $x^2 - 6x + 4 = 0$

..... **(2)**

(b) Write down the coordinates of the turning point of the graph of $y = x^2 - 6x + 4$

(.....) **(1)**

[Question 13: 3 marks]

TOTAL FOR PAPER IS 40 MARKS