8 $A = 3^5 \times 5 \times 7^3$
$B = 2^3 \times 3 \times 7^4$

(a) (i) Find the Highest Common Factor (HCF) of A and B.

.....

(ii) Find the Lowest Common Multiple (LCM) of A and B.

.....

(2)

$A = 3^5 \times 5 \times 7^3$
$B = 2^3 \times 3 \times 7^4$
$C = 2^p \times 5^q \times 7^r$

Given that
the HCF of B and C is $2^3 \times 7$
the LCM of A and C is $2^4 \times 3^5 \times 5^2 \times 7^3$

(b) find the value of p, the value of q and the value of r.

$p =$ .....

$q =$ .....

$r =$ .....

(2)

(Total for Question 8 is 4 marks)

9 The diagram shows a right-angled triangle.

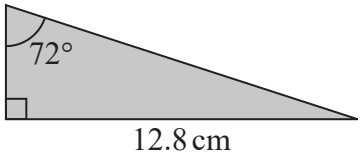


Diagram **NOT** accurately drawn

Five of these triangles are put together to make a shape.

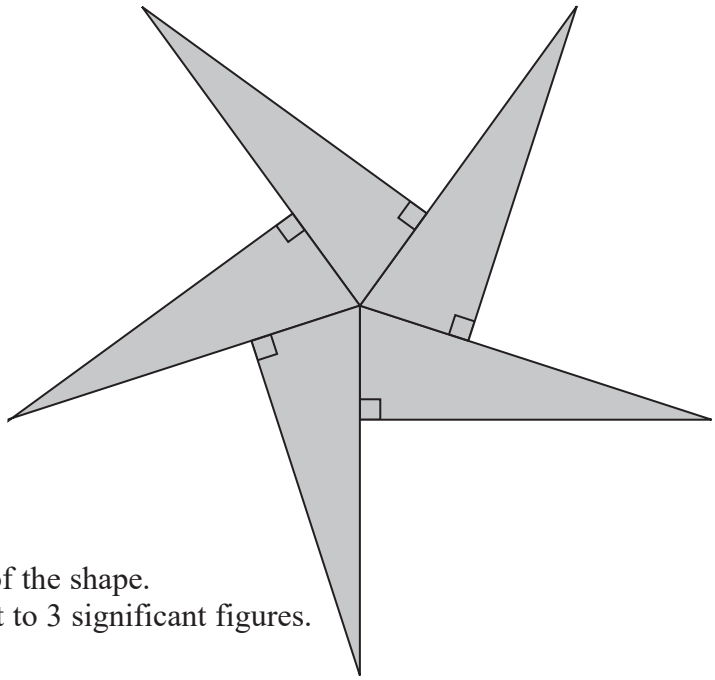


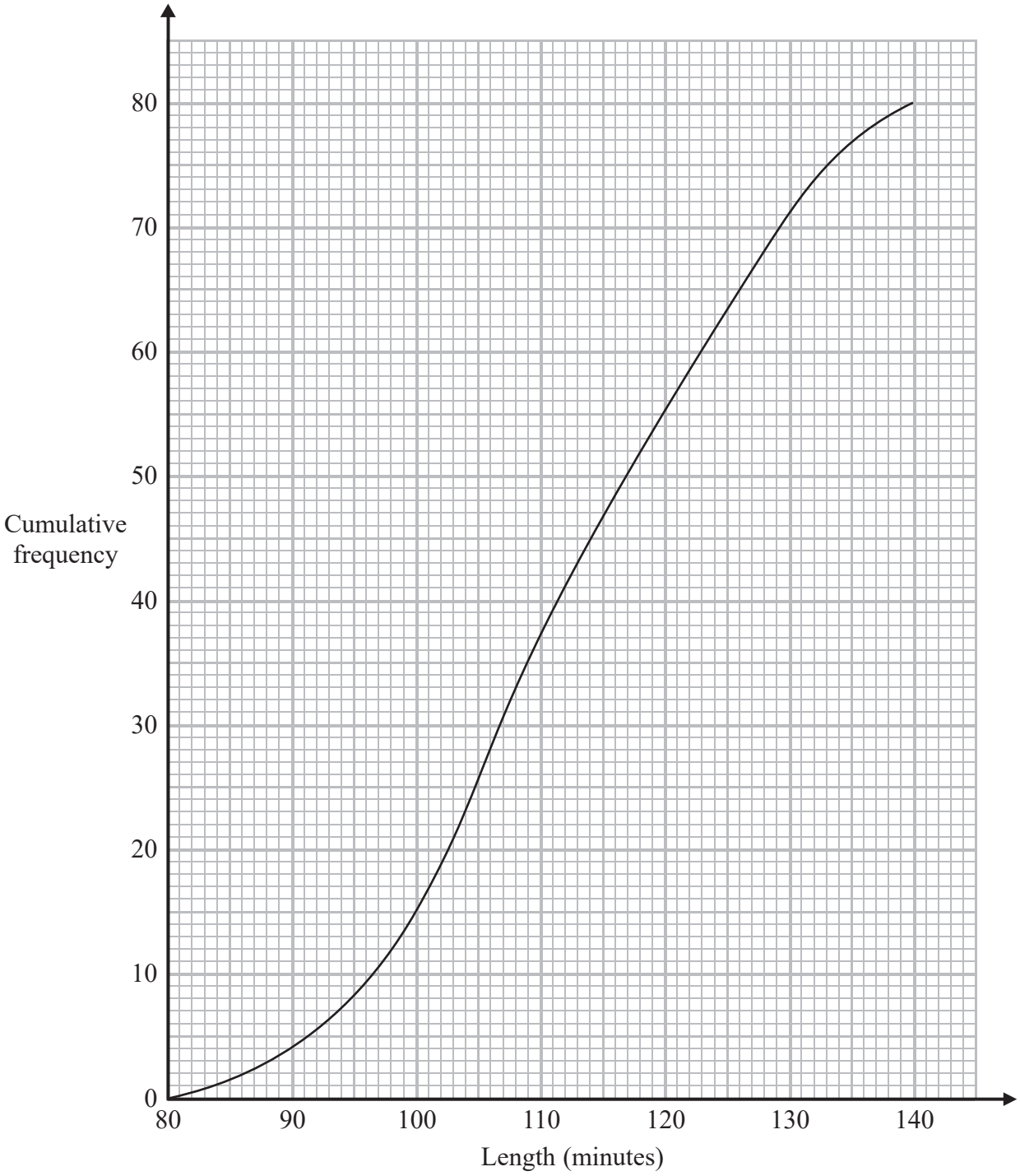
Diagram **NOT** accurately drawn

Calculate the perimeter of the shape.
Give your answer correct to 3 significant figures.

..... cm

(Total for Question 9 is 5 marks)

10 The cumulative frequency graph shows information about the length, in minutes, of each of 80 films.



(a) Use the graph to find an estimate for the interquartile range.

..... minutes

(2)

Clare says,

"More than 35% of these films are over 120 minutes long."

(b) Is Clare correct?
Give a reason for your answer.

.....

.....

(3)

(Total for Question 10 is 5 marks)

11 (a) Expand and simplify $(2x - 1)(x + 3)(x - 5)$

.....

(3)

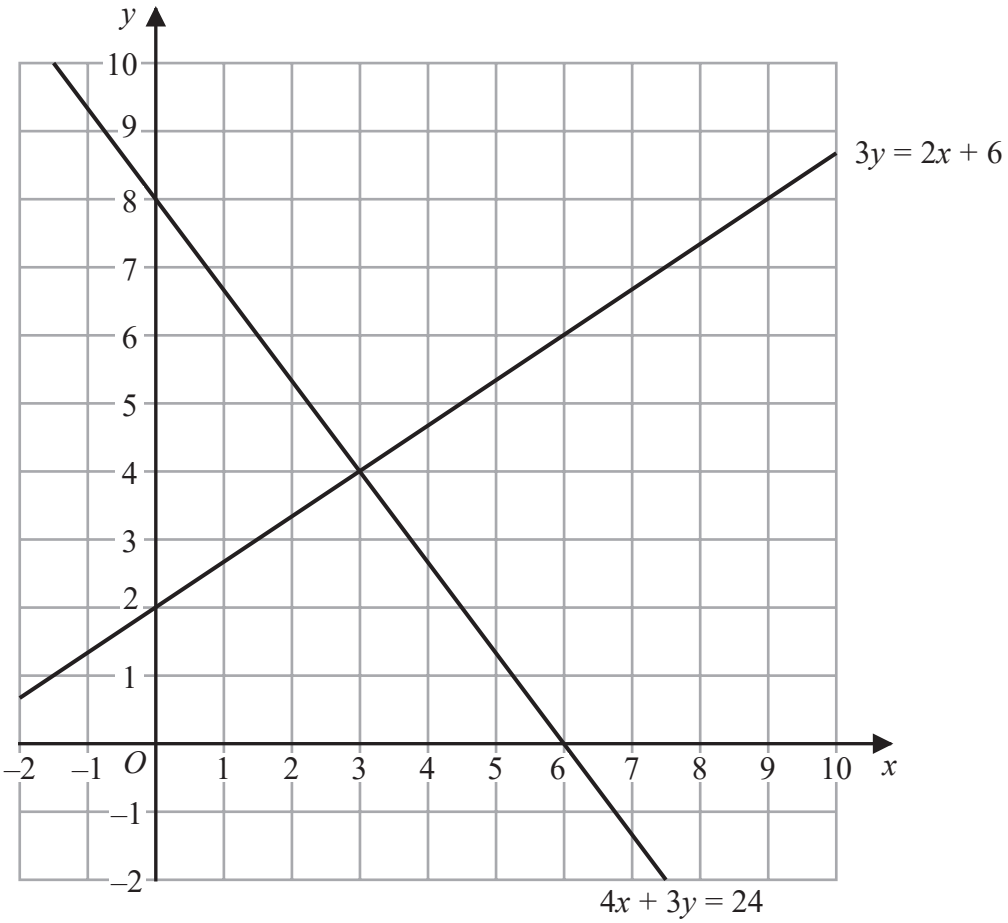
(b) Solve $3x^2 + 6x - 5 = 0$
Show your working clearly.
Give your solutions correct to 3 significant figures.

.....

(3)

(Total for Question 11 is 6 marks)

12 The diagram shows two straight lines drawn on a grid.



(a) Write down the solution of the simultaneous equations

$$3y = 2x + 6$$
$$4x + 3y = 24$$

$x =$ .....

$y =$ .....

(1)

(b) Show, by shading on the grid, the region defined by all five of the inequalities

$x \geqslant 0$ $y \geqslant 0$ $x + y \geqslant 4$ $3y \leqslant 2x + 6$ $4x + 3y \leqslant 24$

Label the region **R**.

(3)

(Total for Question 12 is 4 marks)

13

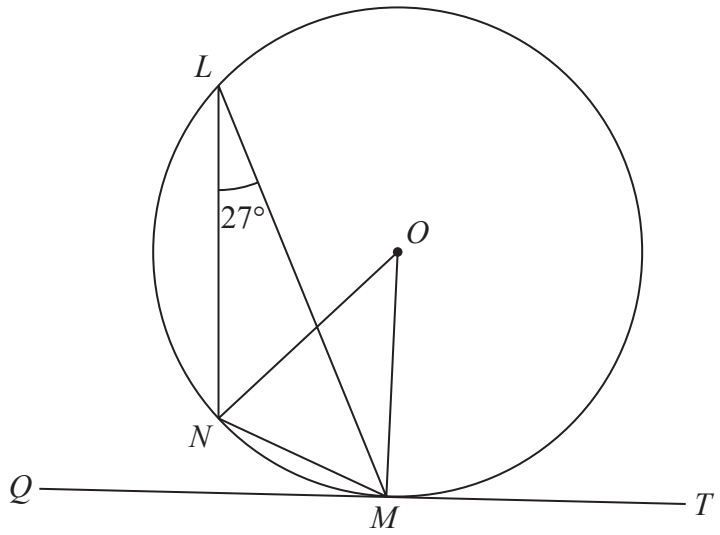


Diagram **NOT** accurately drawn

L, *M* and *N* are points on a circle, centre *O*.
QMT is the tangent to the circle at *M*.

(a) (i) Find the size of angle *NOM*.

.....°

(ii) Give a reason for your answer.

.....

.....

(2)

(b) (i) Find the size of angle *NMQ*.

.....°

(ii) Give a reason for your answer.

.....

.....

(2)

(Total for Question 13 is 4 marks)