

**Q2.**

Solve, by factorising, the equation  $8x^2 - 30x - 27 = 0$   
(Total for Question is 3 marks)



Date:

**Q3.**

The expression  $x^2 - 8x + 21$  can be written in the form  $(x - a)^2 + b$  for all values of  $x$ .

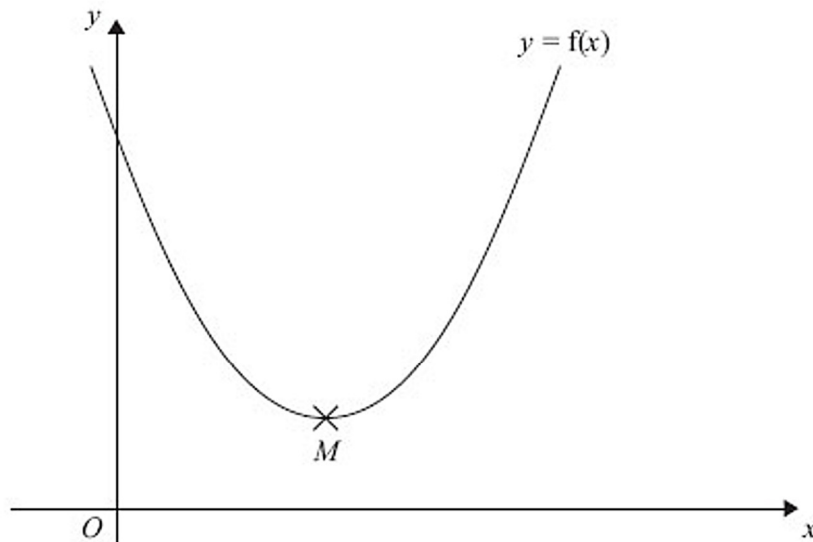
(a) Find the value of  $a$  and the value of  $b$ .

$a = \dots\dots\dots$

$b = \dots\dots\dots$  (3)

The equation of a curve is  $y = f(x)$  where  $f(x) = x^2 - 8x + 21$

The diagram shows part of a sketch of the graph of  $y = f(x)$ .



The minimum point of the curve is  $M$ .

(b) Write down the coordinates of  $M$ . (1)

(Total for Question is 4 marks)

**Q4.** Solve the simultaneous equations

$$4x + y = 25$$

$$x - 3y = 16$$

$x = \dots\dots\dots$

$y = \dots\dots\dots$



(Total for Question is 3 marks)

**Q5.** Solve the equations

$$x^2 + y^2 = 36$$

$$x = 2y + 6$$

$x = \dots\dots\dots$

$y = \dots\dots\dots$

(Total for Question is 5 marks)



**Q6.** A cinema sells adult tickets and child tickets.

The total cost of 3 adult tickets and 1 child ticket is £30

The total cost of 1 adult ticket and 3 child tickets is £22

Work out the cost of an adult ticket and the cost of a child ticket.

adult ticket £.....

child ticket £.....

(Total for question = 4 marks)



**Q7.** Solve  $3x^2 - 5x - 1 = 0$

Give your solutions correct to 3 significant figures. (Total for question = 3 marks)



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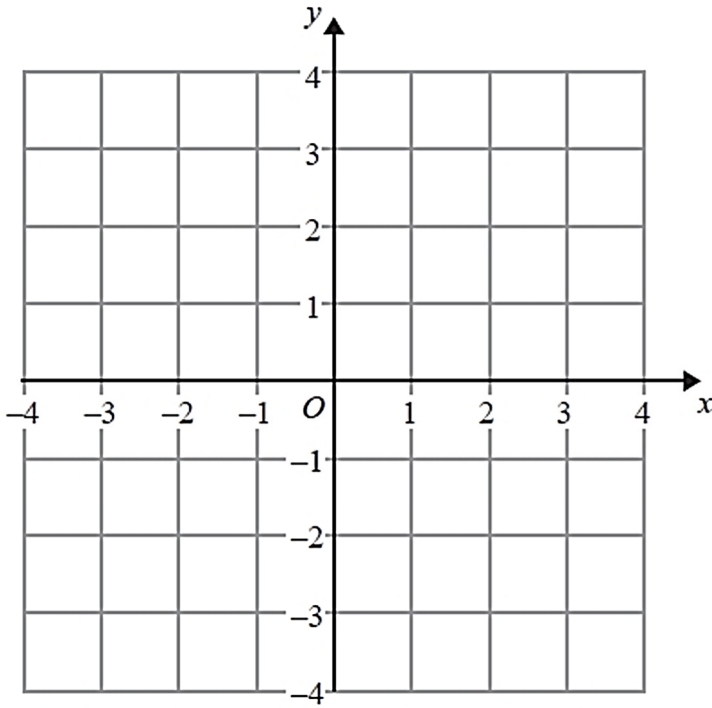
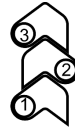
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Q10. (a) Solve the inequality  $5e + 3 > e + 12$

(2)

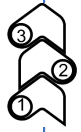
(b) On the grid, shade the region defined by the inequality  $x + y > 1$



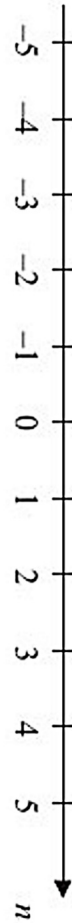
(2)

(Total for Question is 4 marks)

Q8.  $-2 < n \leq 3$



(a) Represent this inequality on the number line. (2)



(b) Solve the inequality  $8x - 3 \geq 6x + 4$

(2)

(Total for Question is 4 marks)

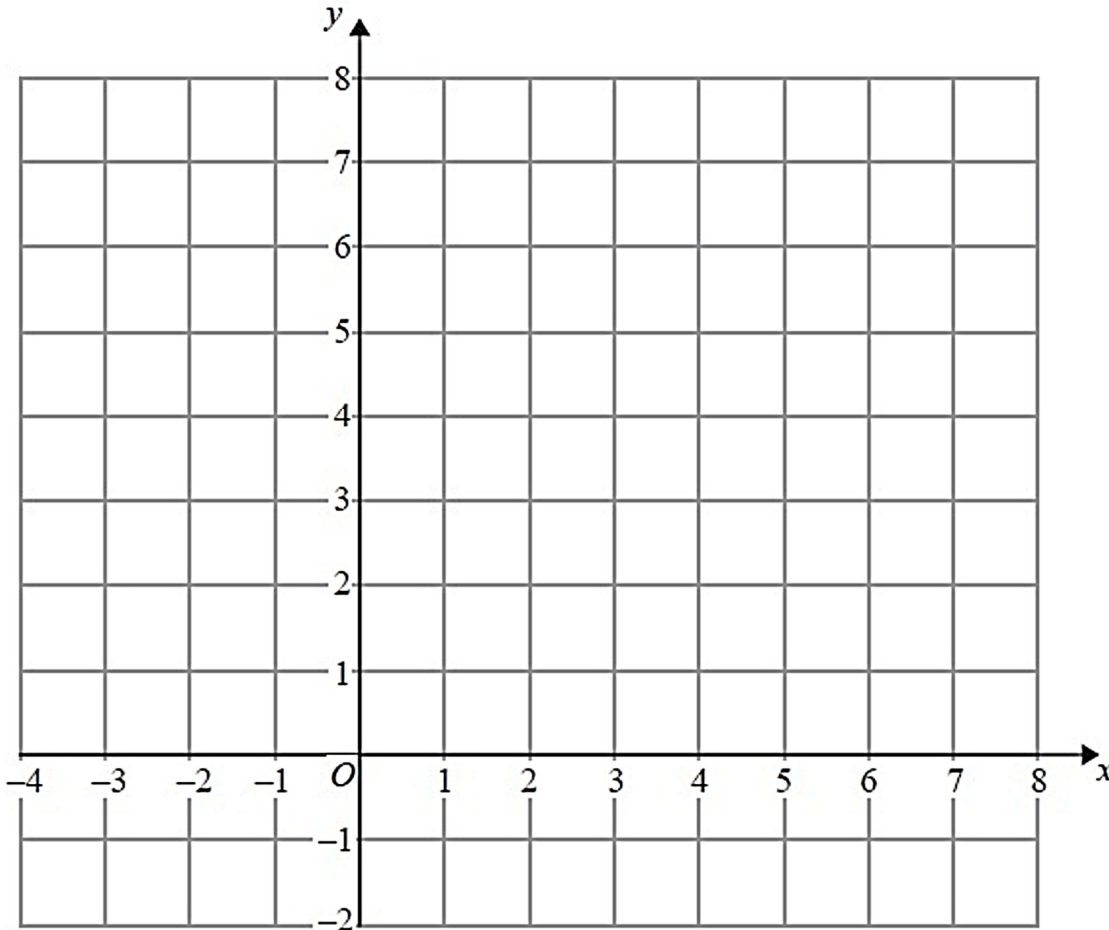
Q11. On the grid below, show by shading, the region defined by the inequalities

$$x + y < 6$$

$$x > -1$$

$$y > 2$$

Mark this region with the letter R.



(Total for Question is 4 marks)