

$$19 \quad a = \frac{p - q}{t}$$

$p = 8.4$ correct to 2 significant figures.

$q = 6.3$ correct to 2 significant figures.

$t = 0.27$ correct to 2 significant figures.

Work out the upper bound for the value of a .

Show your working clearly.

Give your answer correct to 1 decimal place.

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(Total for Question 19 is 3 marks)



20 Solve the inequality $4x^2 - 5x - 6 > 0$

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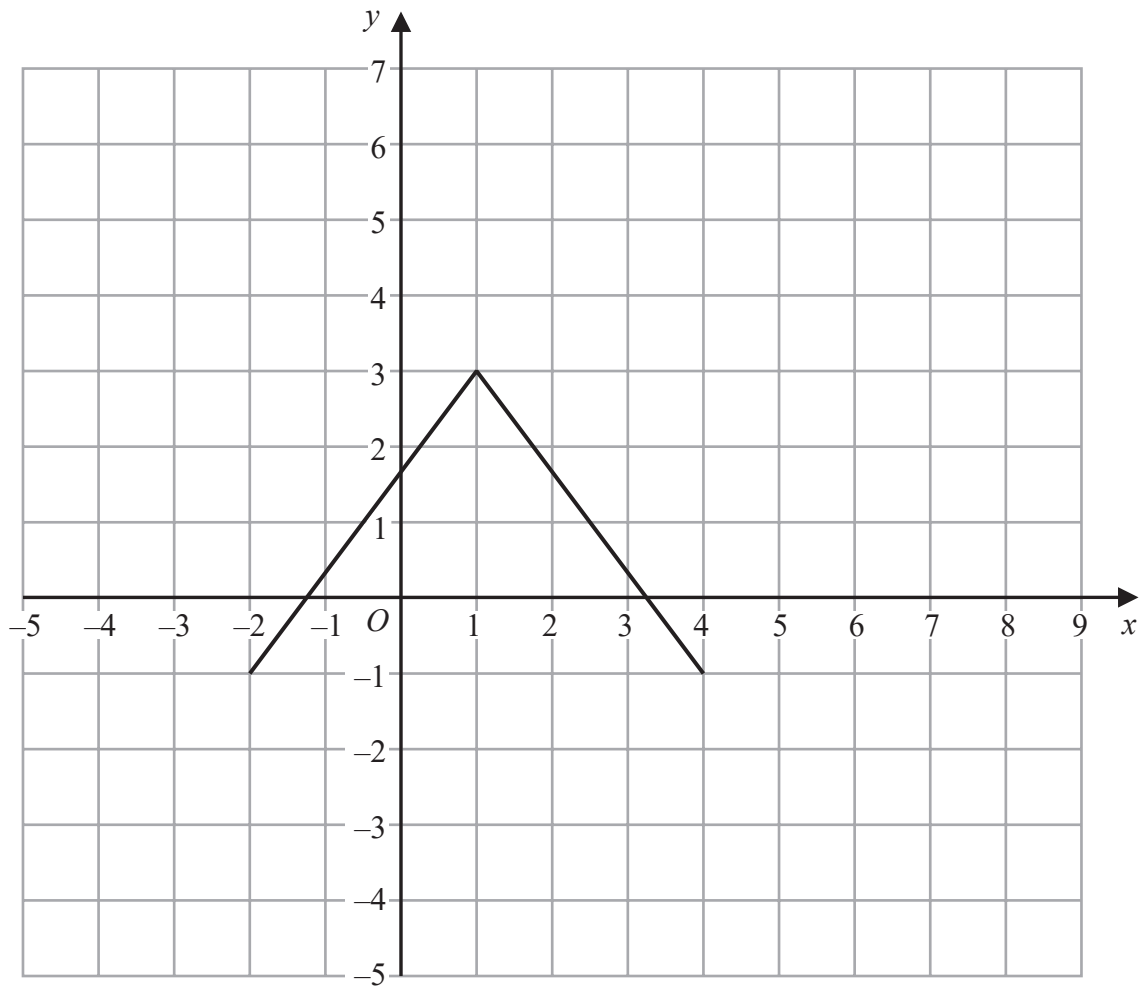
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.....
(Total for Question 20 is 4 marks)



21 Here is the graph of $y = f(x)$



(a) On the grid above, draw the graph of $y = 2f(x)$

(2)

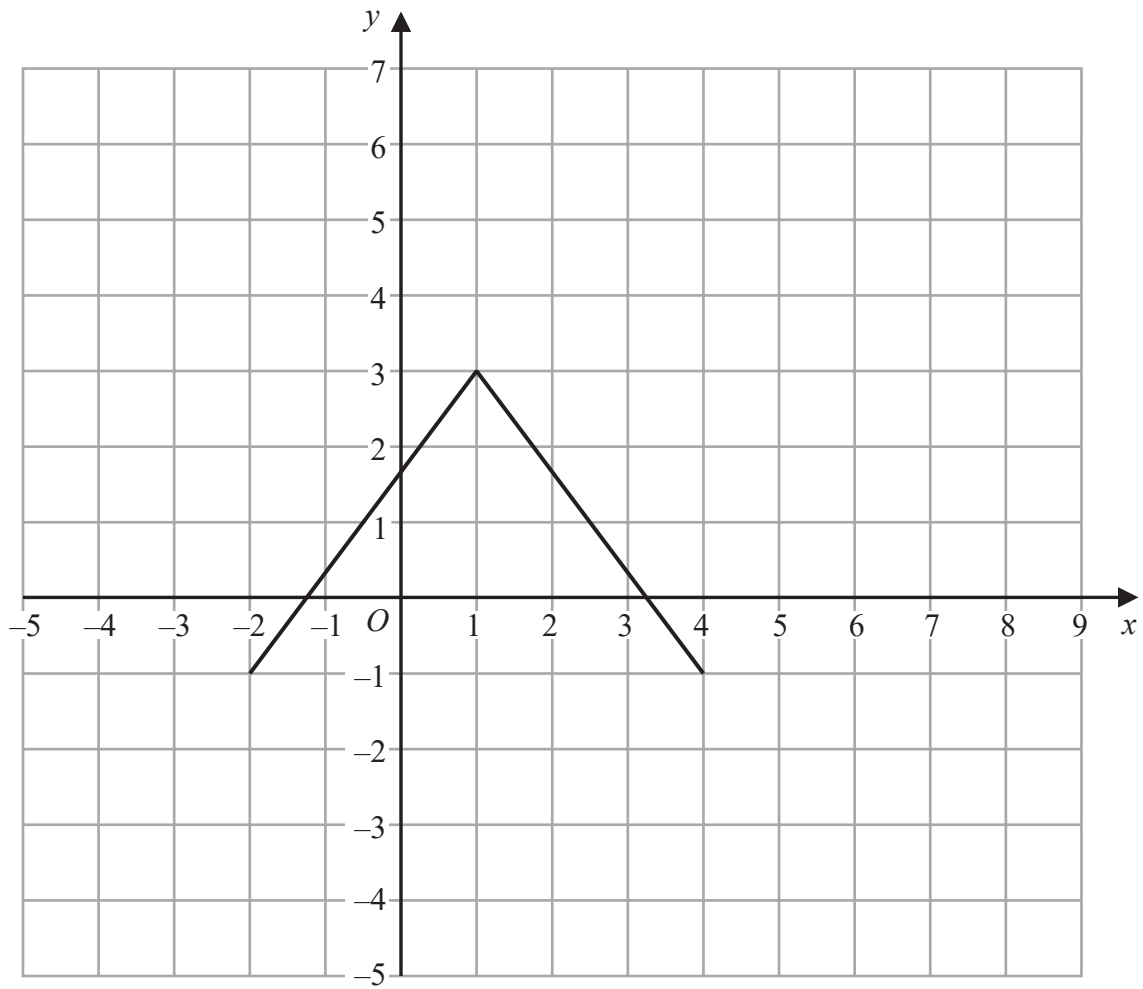
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Here is the graph of $y = f(x)$



(b) On the grid above, draw the graph of $y = f(-x)$

(2)

(Total for Question 21 is 4 marks)

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22 Express $\frac{4x^2 - 25}{5x^2 + 2x - 7} \times \left(\frac{2}{x - 3} - \frac{3}{2x - 5} \right)$ as a single fraction in its simplest form.

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(Total for Question 22 is 4 marks)



23 OAB is a triangle.

$$\vec{OA} = \mathbf{a} \quad \vec{OB} = \mathbf{b}$$

C is the midpoint of OA .

D is the point on AB such that $AD:DB = 3:1$

E is the point such that $\vec{OB} = 2\vec{BE}$

Using a vector method, prove that the points C , D and E lie on the same straight line.

(Total for Question 23 is 5 marks)



24 (a) Express $7 - 4x - x^2$ in the form $p - (x + q)^2$ where p and q are constants.

.....
(2)

(b) Use your answer to part (a) to solve the equation $7 - 4(y + 3) - (y + 3)^2 = 0$

Give your solutions in the form $e \pm \sqrt{f}$ where e and f are integers.

.....
(3)

The curve **C** has equation $y = 3 - 5(x + 1)^2$

The point **A** is the maximum point on **C**.

(c) Write down the coordinates of **A**.

(.....,)

.....

(1)

(Total for Question 24 is 6 marks)

TOTAL FOR PAPER IS 100 MARKS

