Name: _____

Graphical Inequalities

Date:

Time:

Total marks available:

Total marks achieved: _____

Solutions

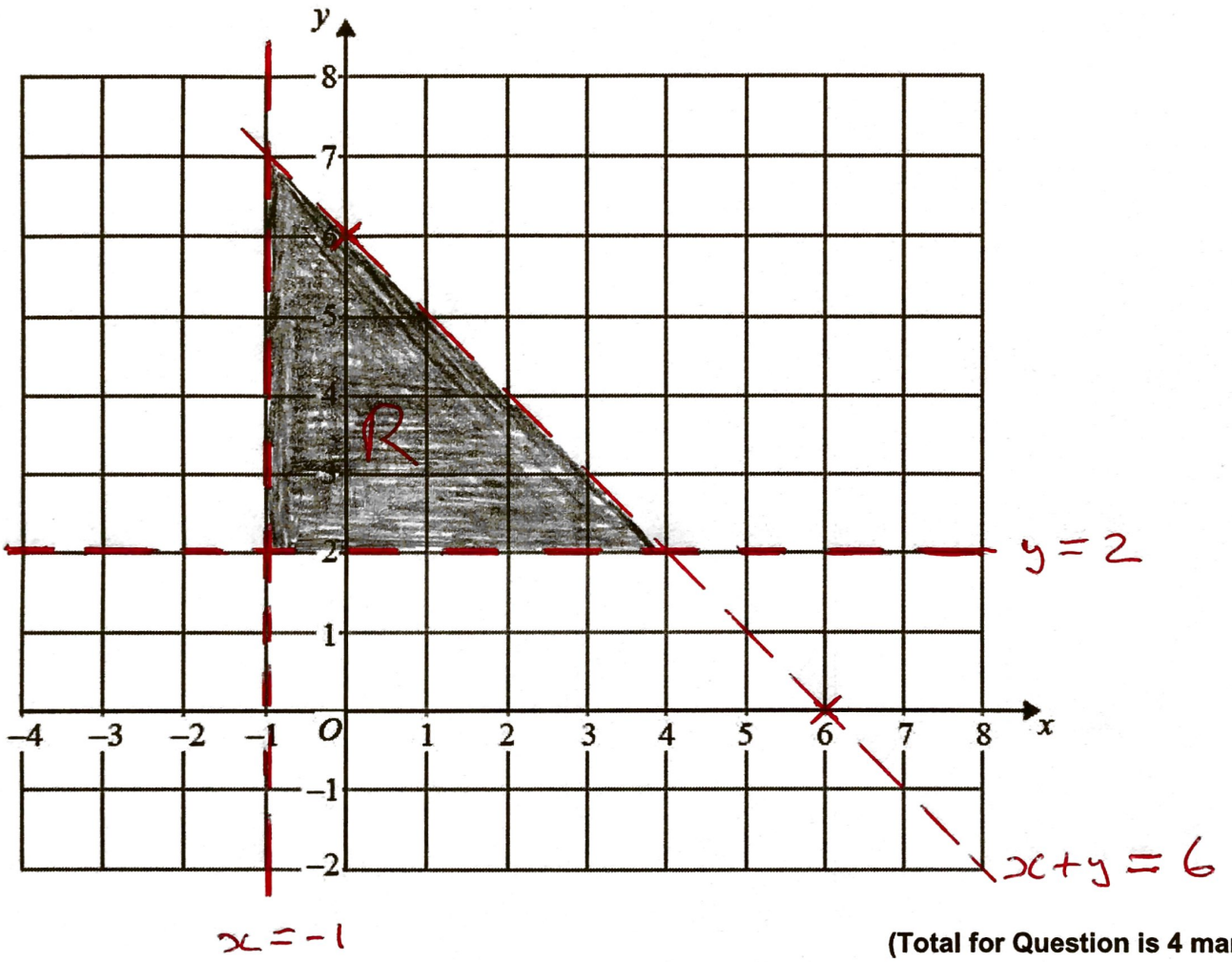
Questions

Q1.

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)

Strict inequalities so lines should be dotted

Q2.

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

$5e + 3 > e + 12$

$5e - e > 12 - 3$

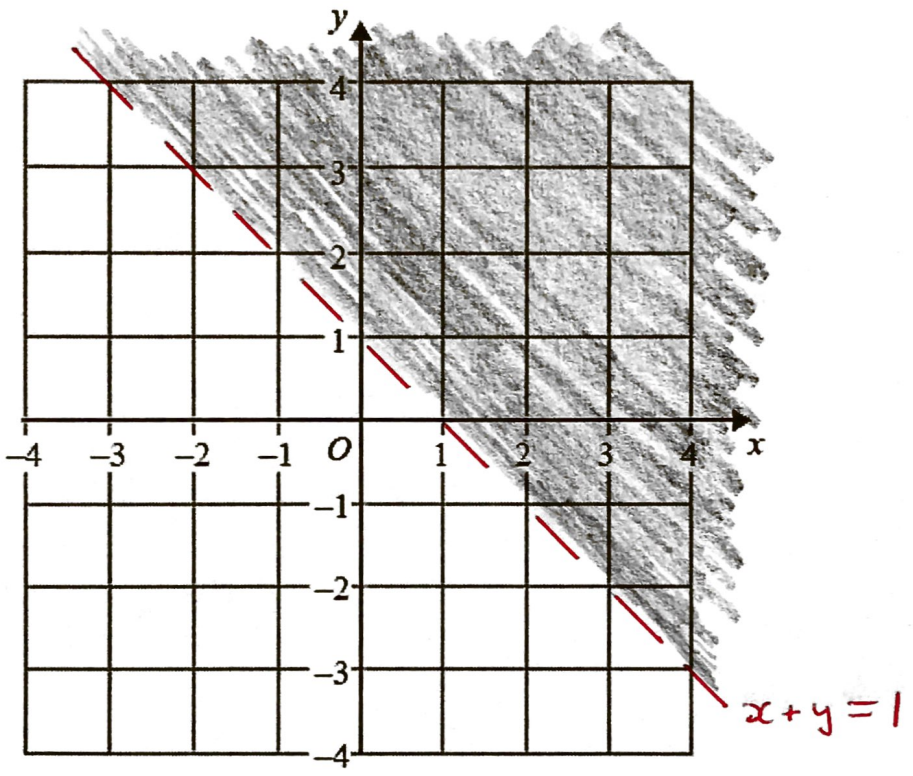
$4e > 9$

$e > \frac{9}{4}$

.....

(2)

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



Strict inequality so line should be dotted

(2)

(Total for Question is 4 marks)

Q3.

(a) Given that x and y are integers such that

$$3 < x < 7$$
$$4 < y < 9$$
$$\text{and } x + y = 13$$

find all the possible values of x.

Possibilities

$x =$ 4, 5, 6

$y =$ 5, 6, 7, 8

$x + y =$ 5 + 8, 6 + 7

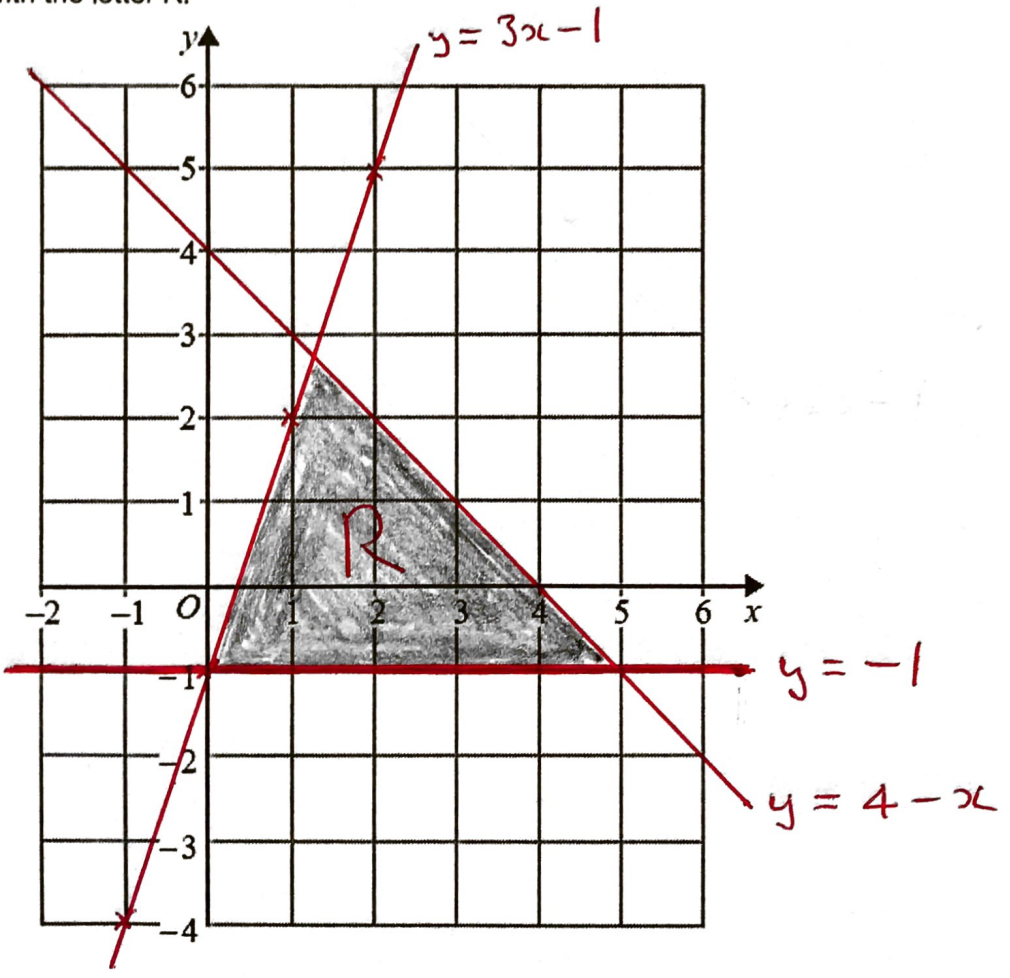
$x = 5$ or 6

(2)

(b) On the grid below show, by shading, the region defined by the inequalities

$y \geqslant -1$ $y \leqslant 4 - x$ $y \leqslant 3x - 1$

Mark this region with the letter R.



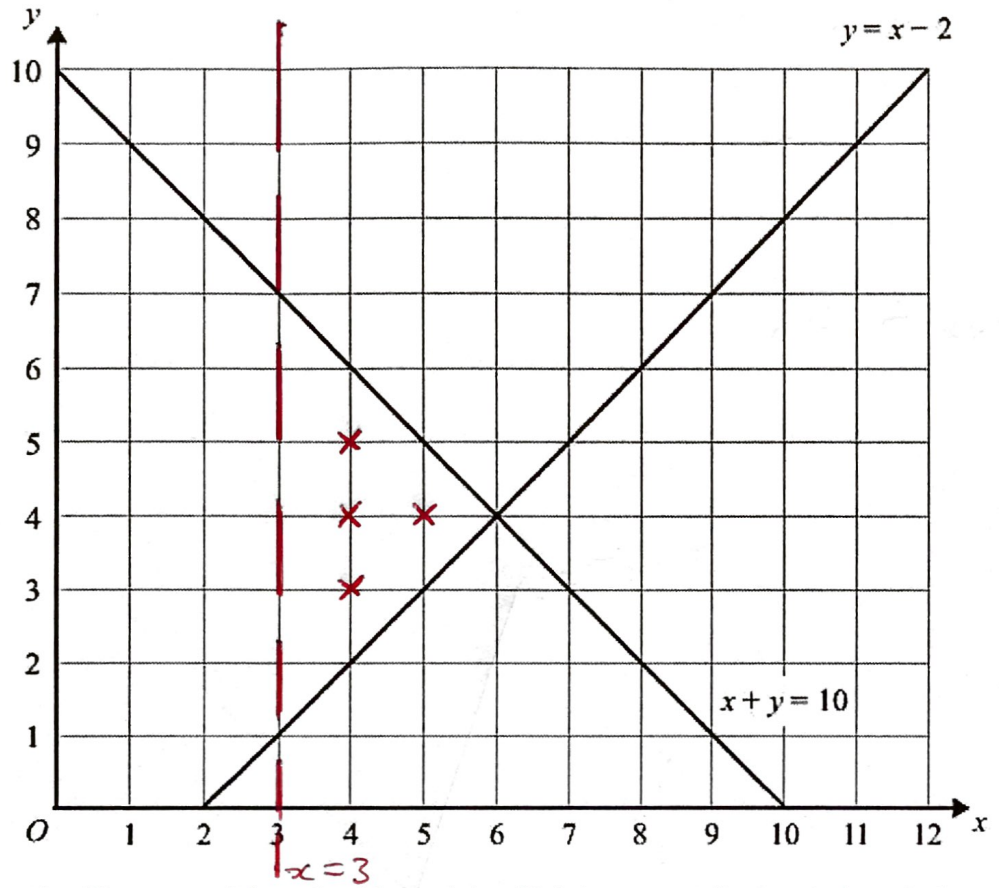
(4)

Inequalities allow equals so lines should be solid

(Total for question = 6 marks)

Q4.

The lines $y = x - 2$ and $x + y = 10$ are drawn on the grid.



On the grid, mark with a cross (×) each of the points with integer coordinates that are in the region defined by

$y > x - 2$
$x + y < 10$
$x > 3$

(Total for Question is 3 marks)

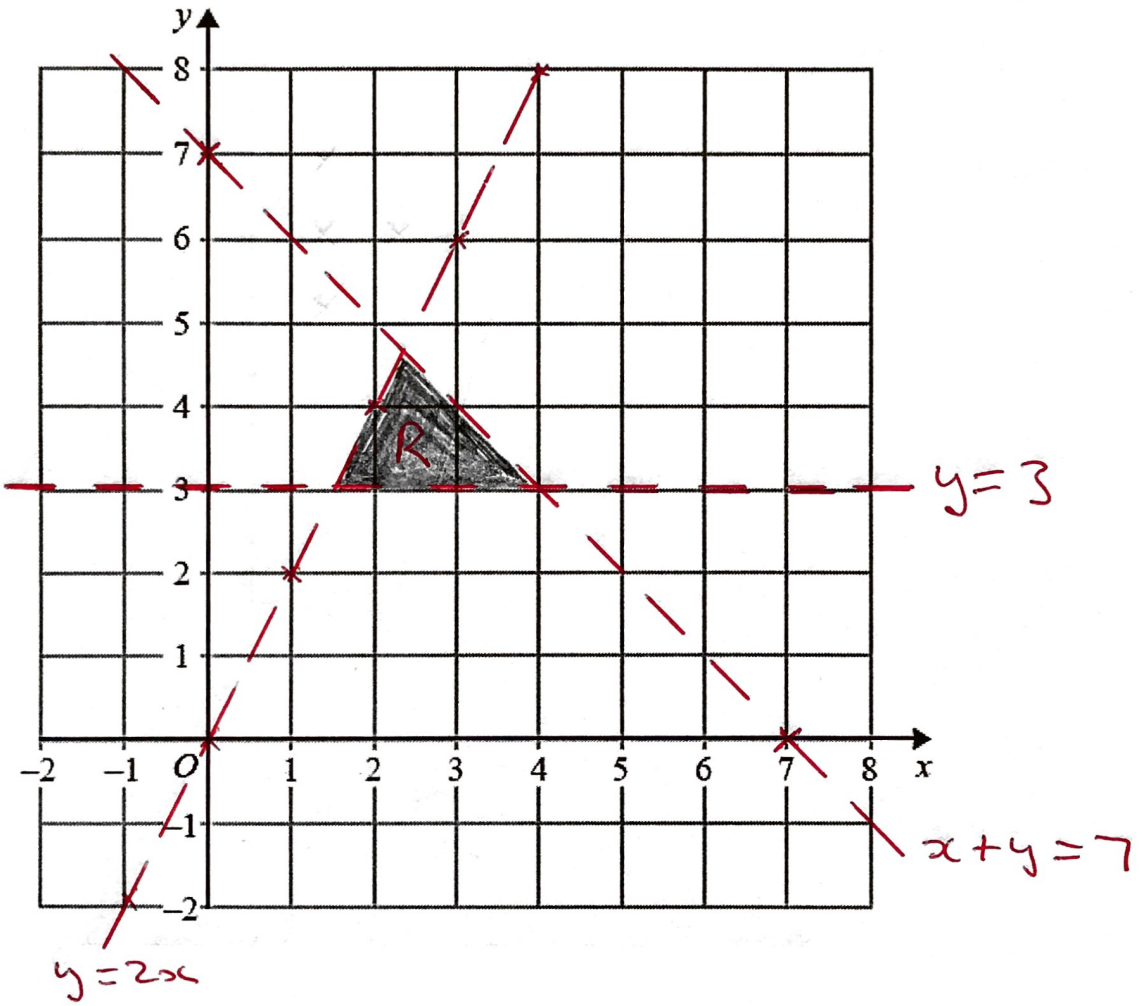
Q5.

On the grid show, by shading, the region that satisfies all three of the inequalities

$x + y < 7$ $y < 2x$ $y > 3$

Label the region **R**.

Strict inequalities so dotted lines



(Total for question = 4 marks)