1 (a) Solve the inequality

$$x^2 + 8x > 20$$

(3)

(b) Find the set of values for x which satisfy both of the inequalities

$$x^2 + 8x > 20$$

$$18 + 3x < 23 + x$$

(1)

(Total for question 1 is 4 marks)

2 Find the set of values of x for which

$$(x + 5)(x + 1) < 32$$

(Total for question 2 is 4 marks)

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3 Solve the simultaneous equations

$$x + y = 3$$

$$x^2 + 2y^2 - 8x = 6$$

(Total for question 3 is 4 marks)

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4 Solve the inequality

$$x(x+1) \leq 12$$

(Total for question 4 is 3 marks)

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5 Find the coordinates of the points where the circle C with equation $x^2 + y^2 - 2x = 19$ meets the line L with equation $y = 3x - 1$.

(Total for question 5 is 4 marks)

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6 The curve C has the equation $y = x^2 - 2x + 7$.

The line L has the equation $x + y = 7$.

Find the coordinates of the points where L and C intersect.

(Total for question 6 is 4 marks)

7 Solve the simultaneous equations

$$x + 2y = 3$$

$$x^2 + y^2 - 2xy = 6$$

(Total for question 7 is 7 marks)

8 (a) Solve the inequality

$$x^2 + 3x - 10 < 0$$

(3)

(b) Find the set of values for x which satisfy both of the inequalities

$$x^2 + 3x - 10 < 0$$

$$9 + 3x \leq 12 + x$$

(2)

(Total for question 8 is 5 marks)