

(C1-3.1a) Name:

### **Homework Questions 1 – Simultaneous Equations by Elimination**

Solve the following linear-linear simultaneous equations by the elimination method

1.  $4x + y = 25$

$$4x - y = 23$$

2.  $5m - 2p = 4$

$$3m - 2p = 0$$

3.  $3x + 4y = 41$

$$4x - 5y = 3$$

$$x = 6$$

$$y = 1$$

4.  $7x + 4y = -3$

$$3y - 2x = 5$$

$$m = 2$$

$$p = 3$$

5.  $3x - 4y = 14$

$$5x + 3y = -54$$

$$x = 7$$

$$y = 5$$

$$x = -1$$

$$y = 1$$

$$x = -6$$

$$y = -8$$

(C1-3.2a) Name:

## **Homework Questions 2 – Simultaneous Equations by Substitution**

Solve the following linear – linear simultaneous equations by substitution

1.  $y = 2x - 10$   
 $x + y = 2$

2.  $y = x + 3$   
 $y - 3x + 13 = 0$

3.  $x = y + 1$   
 $3x + 2y = 2$

$$\begin{array}{l} x = 4 \\ y = -2 \end{array}$$

4.  $y = 3x - 5$   
 $y = x - 1$

$$\begin{array}{l} m = 8 \\ p = 11 \end{array}$$

5.  $y = 2x - 1$   
 $y = x + 6$

$$\begin{array}{l} x = 0.8 \\ y = -0.2 \end{array}$$

6.  $y = 10x + 3$   
 $5x + 3y = 16$

$$\begin{array}{l} a = 2 \\ b = 1 \end{array}$$

7.  $x = y - 8$   
 $2x + 3y = 9$

$$\begin{array}{l} x = 7 \\ y = 13 \end{array}$$

8.  $x = y - 2$   
 $3y - x = 0$

$$\begin{array}{l} x = 0.2 \\ y = 5 \end{array}$$

$$\begin{array}{l} x = -3 \\ y = 5 \end{array}$$

$$\begin{array}{l} x = -3 \\ y = -1 \end{array}$$

(C1-3.3a) Name:

### **Homework Questions 3 – Linear and Non-Linear Simultaneous Equations**

Solve the following linear-non linear simultaneous equations

1.  $x^2 + y^2 = 13$   
 $y = x + 1$

2.  $y = 3x + 11$   
 $y = x^2 + 4x + 5$

$$\begin{array}{l} x = 2 \\ y = -3 \end{array}$$

3.  $y = x^2 + 7x - 10$   
 $y = 3x + 11$

4.  $x^2 + y^2 = 2$   
 $y = 2x + 1$

$$\begin{array}{l} x = 2 \\ y = -3 \end{array}$$

5.  $x^2 + y^2 = 4$   
 $y = x + 2$

$$\begin{array}{l} x = 3 \\ y = -7 \end{array}$$

6.  $y = x^2 + 3x + 2$   
 $y = 4x + 8$

$$\begin{array}{l} x = 0.2 \\ y = -1 \end{array}$$

7.  $xy = 15$   
 $y = 2x - 1$

$$\begin{array}{l} x = 0 \\ y = -2 \end{array}$$

8.  $y = 4x + 14$   
 $xy = 12$

$$\begin{array}{l} x = 3 \\ y = -2 \end{array}$$

$$\begin{array}{l} x = 3 \\ y = -2.5 \end{array}$$

$$\begin{array}{l} x = -1.5 \\ y = -2 \end{array}$$

(C1-3.4a) Name:

### **Homework Questions 4 – Solving Linear Inequalities**

Solve the following inequalities, showing each stage of your working out

1.  $3x + 4 > 7$

$$x > 1$$

2.  $7x - 2 < 19$

$$x < 3$$

3.  $3 > 4x + 11$

$$x < -2$$

4.  $26 \leq 8 - 9x$

$$x \leq -2$$

5.  $6x - 7 \geq 9 - 2x$

$$x \geq 2$$

6.  $5x - 30 < x - 4$

$$x < 6.5$$

7.  $17 - 3x \geq 9x + 41$

$$x \leq -2$$

8.  $4 + 5x < 8 - 11x$

$$x < 0.25$$

9.  $2(3x - 7) + 3 > 13 - 2x$

$$x > 3$$

10.  $3(2x - 7) > 5(6 - x) + 4$

$$x > 5$$

11.  $2(x - 7) + 12 \leq -26 + 8x$

$$x \geq 4$$

12.  $8(2x - 4) - 9x \leq 3$

$$x \leq 5$$

$$13. \quad \frac{x+4}{3} + 2 > 6$$

$$x > 8$$

$$14. \quad \frac{x-3}{2} - 5 \leq 7$$

$$x < 27$$

Find the set of integer values for which:

$$15. \quad 4(x-1) > x+2 \quad \text{and} \quad 3x+5 \geq 5x-3$$

$$2 < x \leq 4$$

$$16. \quad 5(x-2) \geq -20 \quad \text{and} \quad 7(x-3) + 2 \leq 2$$

$$-2 \leq x \leq 3$$

$$17. \quad 33 \geq 8x-7 > 9$$

$$2 < x \leq 5$$

$$18. \quad 31 < 9x+4 < 49$$

$$3 < x < 5$$

$$19. \quad -4 \leq 3x+2 < 11$$

$$-2 \leq x < 3$$

$$20. \quad -2 < 4x+6 \leq 22$$

$$-2 < x < 4$$

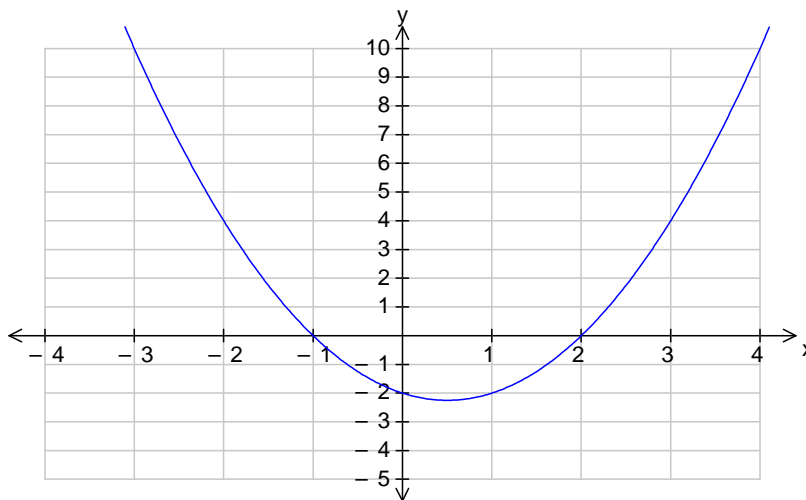
(C1-3.5a) Name:

### Homework Questions 5 – Solving Quadratic Inequalities by Sketching

Find the set of values of  $x$  which satisfy the following inequalities and then sketch the graphs

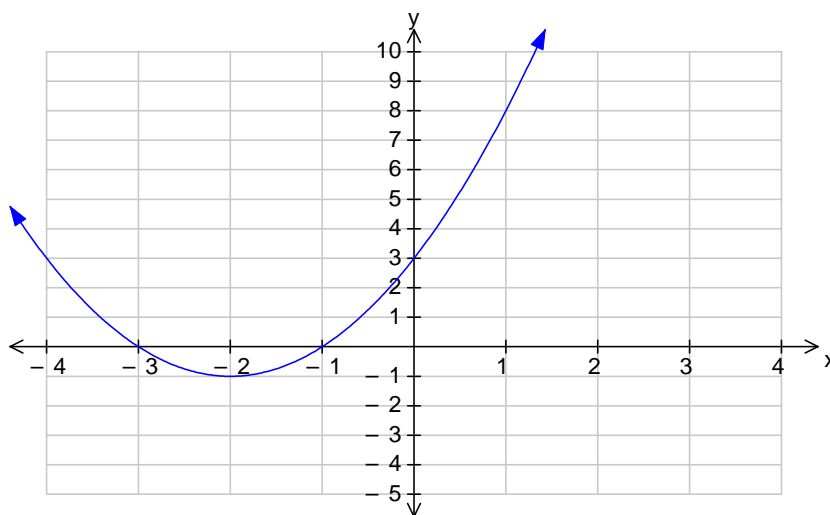
1.  $x^2 - x - 2 > 0$

$$-1 > x > 2$$



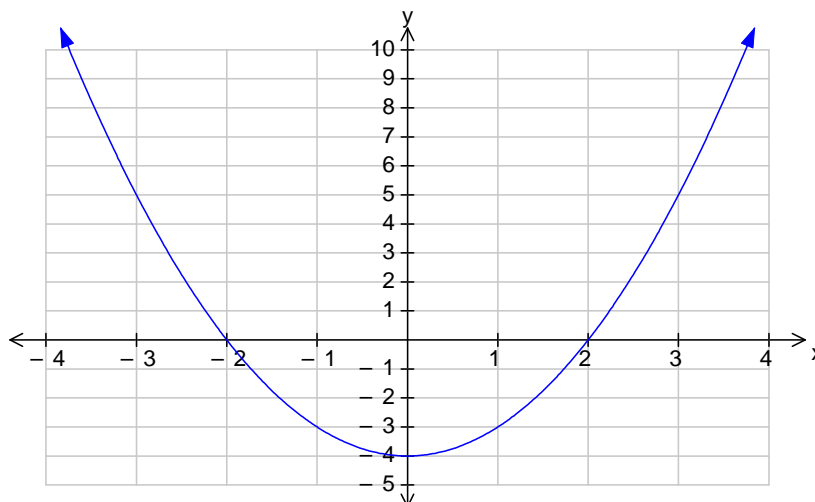
2.  $x^2 + 4x + 3 > 0$

$$-3 > x > -1$$



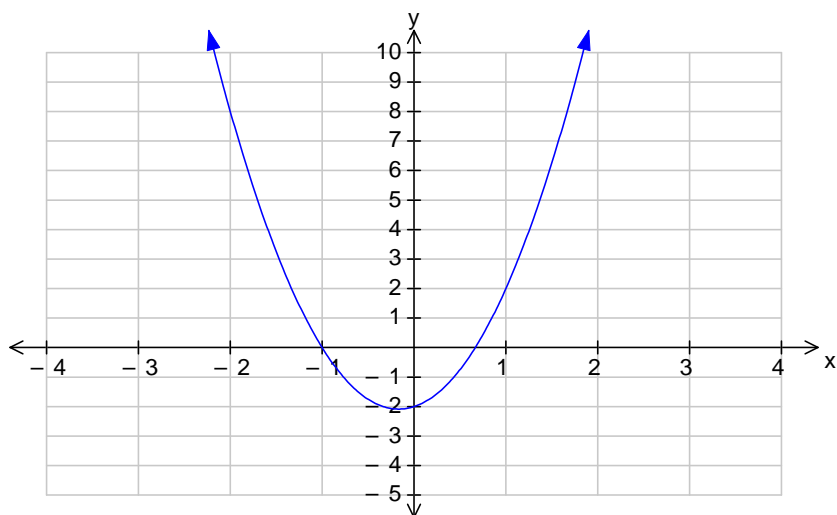
3.  $x^2 - 4 < 0$

$$-2 < x < 2$$



4.  $3x^2 < 2 - x$

$$-1 < x < \frac{2}{3}$$



5.  $3x^2 \geq 2 - 5x$

$$-2 \geq x \geq \frac{1}{3}$$

