

Name: Key

Math 10 Honours – PC Math 11 Systems Preview

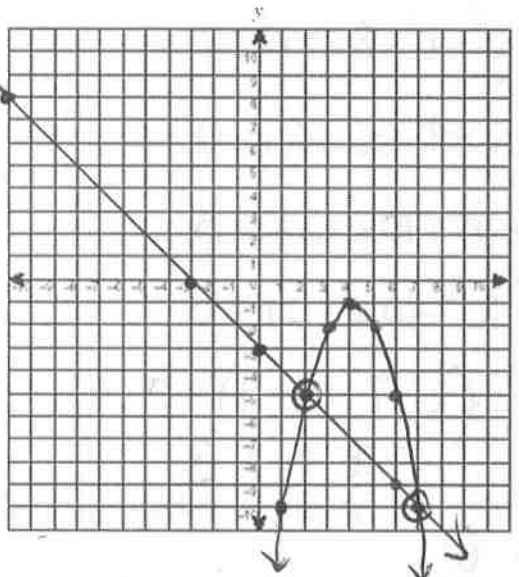
1) Solve each system by graphing

a)  $y + x + 3 = 0$  and  $y = -(x - 4)^2 - 1$

①  $y + x + 3 = 0$   
 $y = -x - 3$   
y-int = -3  
slope =  $-\frac{1}{1}$

②  $y = -(x - 4)^2 - 1$   
vertex (4, -1)  
 $a = -1$   
over 1, down 1  
2      4  
3      9

Solutions: (2, -5) & (7, -10)

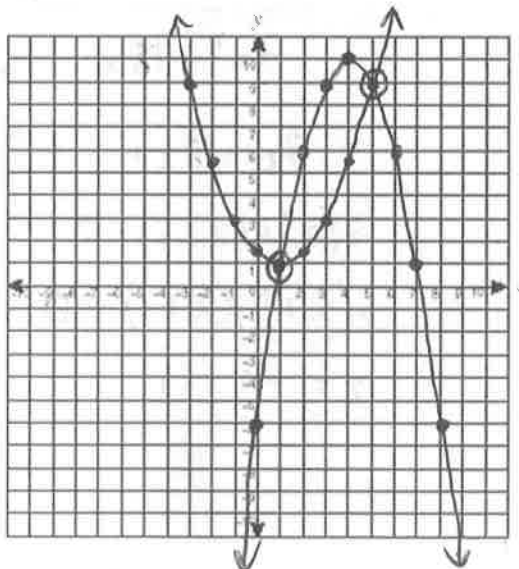


b)  $y = \frac{1}{2}(x - 1)^2 + 1$  and  $y = -(x - 4)^2 + 10$

①  $y = \frac{1}{2}(x - 1)^2 + 1$   
vertex (1, 1)  
 $a = \frac{1}{2}$  over 1, up  $\frac{1}{2}$   
2      2  
3      4.5  
4      8

②  $y = -(x - 4)^2 + 10$   
vertex (4, 10)

$a = -1$  over 1 down 1  
2      4  
3      9  
4      16



(1, 1) & (5, 9)

2) Solve by substitution **and** elimination.

a)  $\textcircled{1} y + 9 = 2x$  and  $\textcircled{2} y - x^2 + 8x - 12 = 0$

Substitution:

$$\textcircled{1} y = 2x - 9$$

$$\textcircled{2} y - x^2 + 8x - 12 = 0$$

$$2x - 9 - x^2 + 8x - 12 = 0$$

$$-x^2 + 10x - 21 = 0$$

$$x^2 - 10x + 21 = 0$$

$$(x - 7)(x - 3) = 0$$

$$x = 7, 3$$

$$\textcircled{1} y + 9 = 2(7) \quad \textcircled{2} y + 9 = 2(3)$$

$$y + 9 = 14$$

$$y = 5$$

$$y + 9 = 6$$

$$y = -3$$

$$(7; 5) \text{ \& } (3, -3)$$

$$\text{Elim: } \begin{array}{r} -x^2 + 8x - 12 + y = 0 \\ -2x + 9 + y = 0 \end{array}$$

$$-x^2 + 10x - 21 = 0$$

$$x^2 - 10x + 21 = 0$$

↓ etc.

b) Solve the system by substitution **or** elimination:

$\textcircled{1} 2x^2 + y + 12x = -12$  and  $\textcircled{2} y - x^2 - 6x = 3$

$$\text{Elimination: } \begin{array}{r} 2x^2 + 12x + y = -12 \\ -(-x^2 - 6x + y = 3) \end{array}$$

$$3x^2 + 18x = -15$$

$$3x^2 + 18x + 15 = 0$$

$$3(x^2 + 6x + 5) = 0$$

$$3(x + 5)(x + 1) = 0$$

$$x = -5, -1$$

$$\textcircled{2} y - (-5)^2 - 6(-5) = 3$$

$$y - 25 + 30 = 3$$

$$y + 5 = 3$$

$$y = -2$$

$$(-5, -2)$$

$$\textcircled{2} y - (-1)^2 - 6(-1) = 3$$

$$y - 1 + 6 = 3$$

$$y + 5 = 3$$

$$y = -2$$

$$(-5, -2) \text{ \& } (-1, -2)$$