

Solve: $x^2 + x - 12 = 0$

Factoring

(+1) -12
 -1, 12
 -2, 6
 -3, 4
 $(x-3)(x+4) = 0$
 1, 12
 $x-3=0$ $x+4=0$ 2, 6
 $x=3$ $x=-4$ 3, 4

Q.F.

$$x = \frac{-(-1) \pm \sqrt{(-1)^2 - 4(1)(-12)}}{2(1)}$$

$$= \frac{-1 \pm \sqrt{(1)^2 - 4(1)(-12)}}{2(1)}$$

$$= \frac{-1 \pm \sqrt{49}}{2}$$

$$= \frac{-1+7}{2} \qquad = \frac{-1-7}{2}$$

$$= \frac{6}{2} = 3 \qquad = \frac{-8}{2} = -4$$

$x=3$ $x=-4$

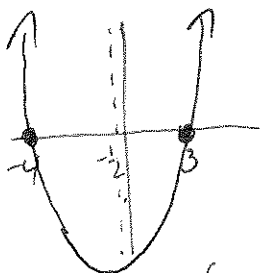
Solve (b=0)

Not an option \rightarrow
 $b=1$

Graphing $(-\frac{b}{2a})$

Vertex: $(-\frac{b}{2a})$

$$x = \frac{-1}{2(1)} = -\frac{1}{2}$$



$$x = -4$$

$$x = 3$$

x	y
-4	0
-3	-6
-2	-10
-1	-12
$-\frac{1}{2}$	-12.25
0	-12
1	-10
2	-6
3	0

Completing the Square $(\frac{b}{2})^2$

$$x^2 + x + \underline{\hspace{2cm}} = 12 + \underline{\hspace{2cm}}$$

$$(\frac{1}{2})^2 = \frac{1}{4}$$

$$x^2 + x + \frac{1}{4} = 12 + \frac{1}{4}$$

$$(x + \frac{1}{2})^2 = \frac{49}{4}$$

$$x + \frac{1}{2} = \pm \frac{7}{2}$$

$$x = \frac{7}{2} - \frac{1}{2} \qquad x = -\frac{7}{2} - \frac{1}{2}$$

$$= \frac{6}{2} = 3 \qquad = \frac{-8}{2} = -4$$

$x=3$ $x=-4$