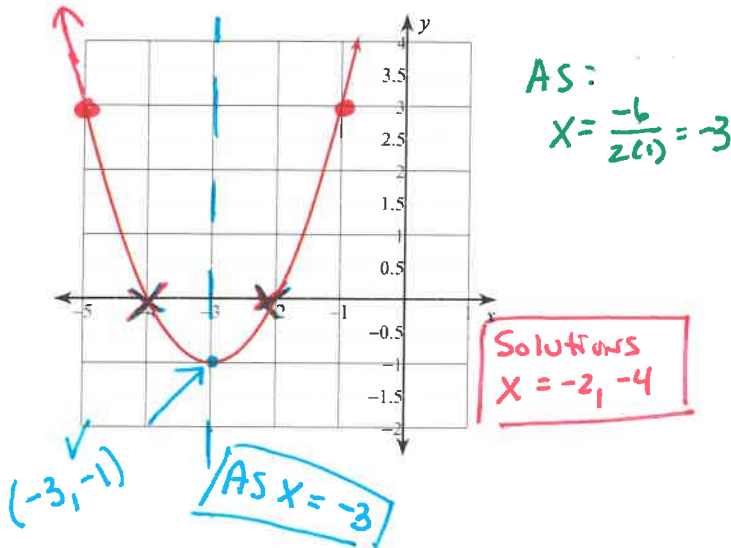


10.3 to 10.6 Solve QE 's (all methods)

Solve and check by Graphing. Clearly graph each function labeling the vertex, A.S., and solutions (x).

$A=1 \ B=6 \ C=8$

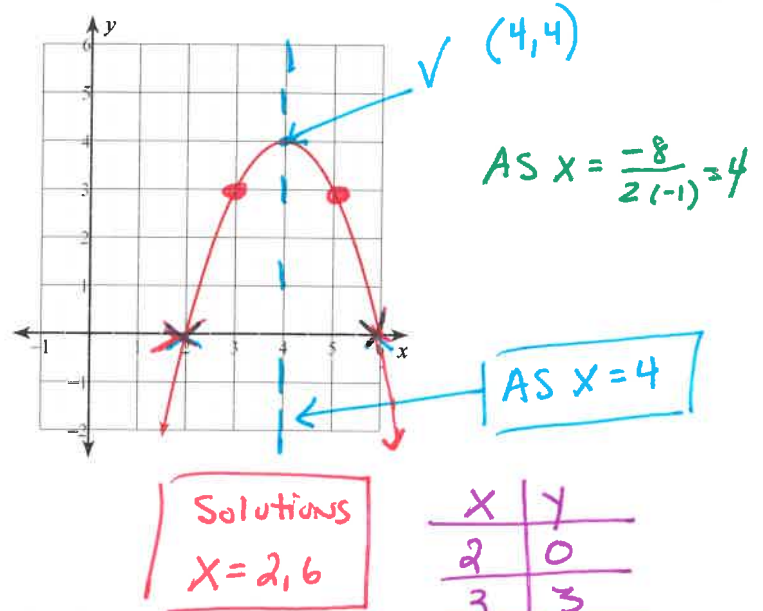
1) $f(x) = x^2 + 6x + 8$



X	-5	-4	-3	-2	-1
Y	3	0	-1	0	3

$A=-1 \ B=8 \ C=-12$

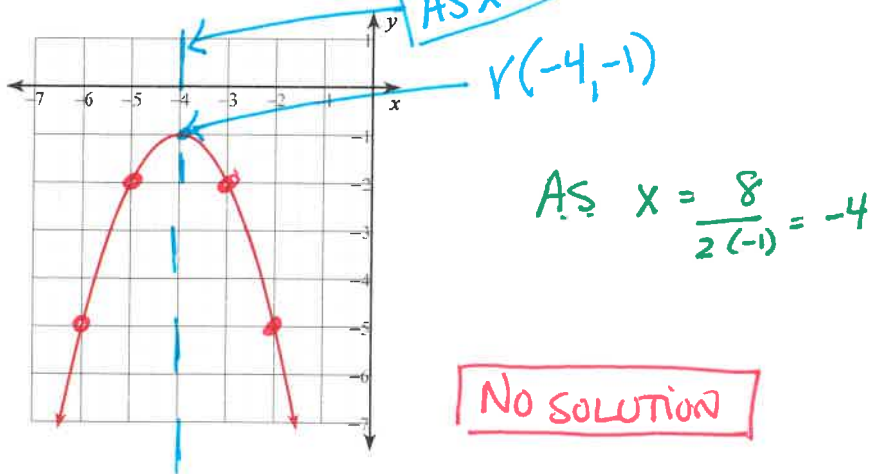
2) $f(x) = -x^2 + 8x - 12$



X	Y
2	0
3	3
4	4
5	3
6	0

$A=-1 \ B=-8 \ C=-17$

3) $f(x) = -x^2 - 8x - 17$



X	-2	-3	-4	-5	-6
Y	-5	-3	-1	-3	-5

Solve each equation by taking square roots.

4) $-4x^2 + 1 = -143 \rightarrow \frac{-4x^2}{-4} = \frac{-144}{-4}$
 $\{6, -6\}$

$\sqrt{x^2} = \sqrt{36}$
 $x = \pm 6$

5) $-3x^2 + 4 = 41 \rightarrow \frac{-3x^2}{-3} = \frac{37}{-3}$
 $\{x = \text{no real solution}\}$

$\sqrt{x^2} = \sqrt{\frac{37}{-3}}$

$x = \text{NO SOLUTION}$

SHOW taking $\sqrt{\quad}$

REMEMBER TO CIRCLE SOLUTIONS

Solve each equation by Completing the square.

6) $n^2 - 2n - 80 = 0 \rightarrow n^2 - 2n + \boxed{1} = 80 + 1$
 $\{10, -8\}$

$\sqrt{(n-1)^2} = \sqrt{81}$

$n-1 = \pm 9$
 $\begin{array}{cc} +1 & +1 \\ \hline \end{array}$

$n = 1 \pm 9$

$n = 1 + 9$
 $n = 10$

$n = 1 - 9$
 $n = -8$

7) $n^2 + 20n + 68 = 4 \rightarrow n^2 + 20n + \boxed{100} = -64$
 $\{-4, -16\}$

$\sqrt{(n+10)^2} = \sqrt{36}$

$n+10 = \pm 6$
 $\begin{array}{cc} -10 & -10 \\ \hline \end{array}$

$n = -10 \pm 6$

$n = -10 - 6$
 $n = -16$

$n = -10 + 6$
 $n = -4$

Solve the equation by completing the square. (Tip: Remember what to do when A NE 1)

$$8) \frac{7x^2 + 14x - 21}{7} = 0$$

$\{1, -3\}$

$$\longrightarrow x^2 + 2x - 3 = 0$$

$$x^2 + 2x + \boxed{1} = 3 + 1$$

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

$$x+1 = \pm 2$$

$$\frac{-1 \quad -1}{x = -1 \pm 2}$$

$$x = -1 + 2$$

$$\boxed{x = 1}$$

$$x = -1 - 2$$

$$\boxed{x = -3}$$

Solve each equation with the Quadratic formula.

$$9) n^2 - 11n + 32 = 8$$

$\{8, 3\}$

$$\downarrow$$

$$n^2 - 11n + 24 = 0$$

$$A=1 \quad B=-11 \quad C=24$$

$$x = \frac{11 \pm \sqrt{121 - 4(1)(24)}}{2(1)}$$

$$x = \frac{11 \pm \sqrt{25}}{2}$$

NOTE: IF THIS IS NOT A PERFECT SQUARE THEN DO NOT ROUND

$$x = \frac{11 + 5}{2}$$

$$\boxed{x = 8}$$

$$x = \frac{11 - 5}{2}$$

$$\boxed{x = 3}$$

EX:

$$x = \frac{5 + \sqrt{11}}{2}$$

$$\boxed{x \approx 4.16}$$

Round 2
Decimals

$$10) x^2 - x - 100 = -10$$

$\{10, -9\}$

$$\downarrow$$

$$x^2 - x - 90 = 0$$

$$A=1 \quad B=-1 \quad C=-90$$

$$x = \frac{1 \pm \sqrt{1 - 4(1)(-90)}}{2(1)}$$

$$x = \frac{1 \pm \sqrt{361}}{2}$$

$$x = \frac{1 + 19}{2}$$

$$\boxed{x = 10}$$

$$x = \frac{1 - 19}{2}$$

$$\boxed{x = -9}$$

Solve each equation with the quadratic formula.

11) $-3x^2 - 6 = 0$

$A = -3 \quad B = 0 \quad C = -6$

$$X = \frac{-0 \pm \sqrt{0 - 4(-3)(-6)}}{2(-3)}$$

$$X = \frac{0 \pm \sqrt{-72}}{-6}$$

X = NO SOLUTION

Solve each equation using the easiest method (taking square roots, completing the square, quadratic formula, or factoring)

12) $\frac{2m^2}{2} = 50$
 $\{5, -5\}$

SQ ROOTS
 $\sqrt{m^2} = \sqrt{25}$
 $m = \pm 5$

13) $n^2 + 4n - 21 = 0$

$\{3, -7\}$

Factor

$$(X + 7)(X - 3) = 0$$

$$X + 7 = 0 \quad X - 3 = 0$$

$X = -7$

$X = 3$

14) $x^2 + 6x = 27$

$\{3, -9\}$

Complete SQ

$$X^2 + 6x + 9 = 27 + 9$$

$$\sqrt{(X + 3)^2} = \sqrt{36}$$

$$\frac{X + 3}{-3} = \pm \frac{6}{-3}$$

$$X = -3 \pm 6$$

$X = -3 + 6$
 $X = 3$

$X = -3 - 6$
 $X = -9$

16) $6n^2 + 36n = 0$

$\{-6, 0\}$

Factor

$$6N(N + 6) = 0$$

$\frac{6N}{6} = 0 \div 6$
 $N = 0$

$N + 6 = 0$
 $\frac{N + 6}{-6} = \frac{0}{-6}$
 $N = -6$

Set each factor = 0 and solve

15) $2x^2 - 7x - 4 = 0$

$\{-\frac{1}{2}, 4\}$

Quadratic Formula

$A = 2 \quad B = -7 \quad C = -4$

$$X = \frac{7 \pm \sqrt{49 - 4(2)(-4)}}{2(2)}$$

$$X = \frac{7 \pm \sqrt{81}}{4}$$

$X = \frac{7 + 9}{4}$
 $X = 4$

$X = \frac{7 - 9}{4}$
 $X = -\frac{1}{2}$