

Student Name: _____

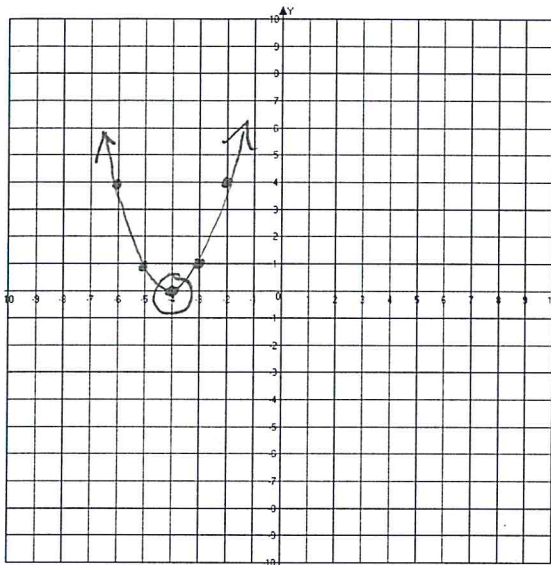
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Solve by Graphing

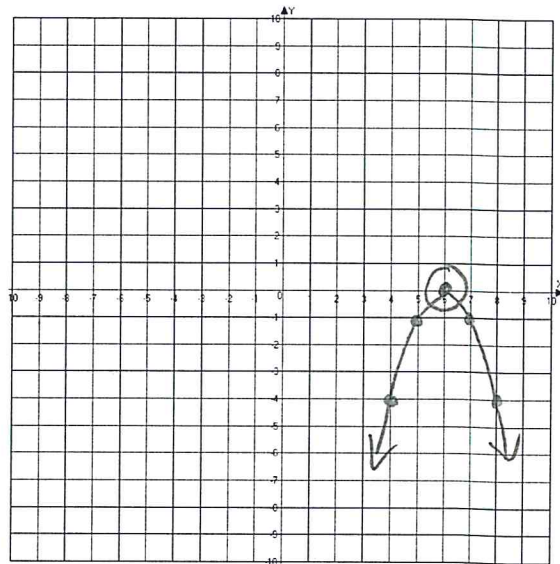
Sketch the graph and find the solution of the quadratic equations:

MAKE A TABLE WITH 5 POINTS INCLUDING THE VERTEX.

$y = x^2 + 8x + 16$ SOLUTION $\{-4\}$ $y = -x^2 + 12x - 36$ $\{6\}$

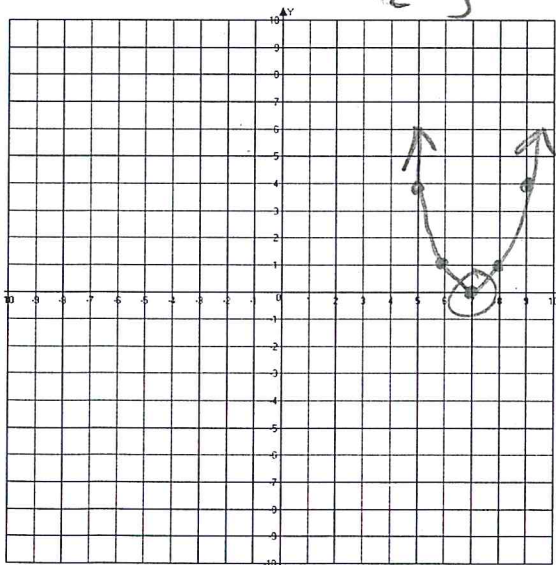


x	y
-6	4
-5	1
-4	0
-3	1
-2	4



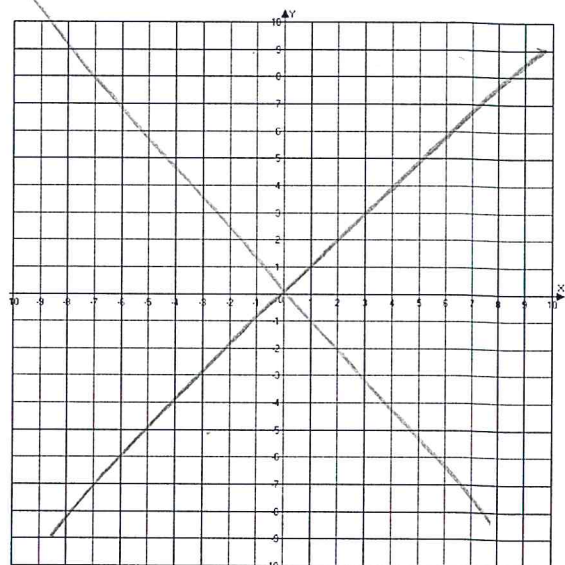
x	y
4	-4
5	-1
6	0
7	-1
8	-4

$y = x^2 - 14x + 49$ $\{7\}$



x	y
5	4
6	1
7	0
8	1
9	4

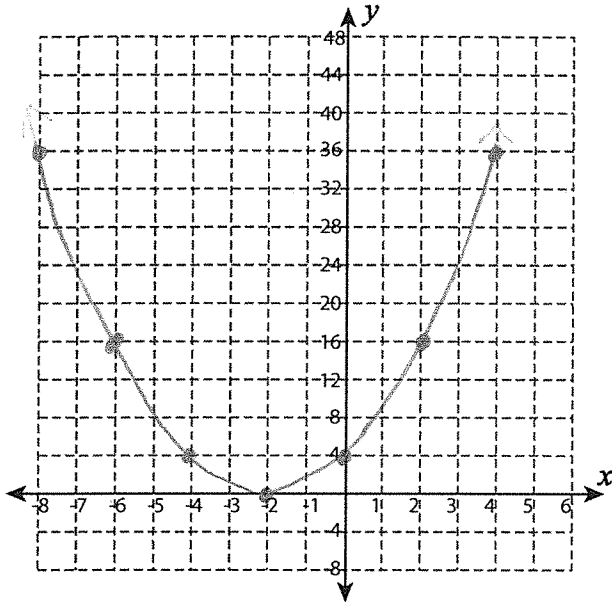
~~$y = x^2 + 18x + 91$~~



Compute the function table. Draw the graph of each function.

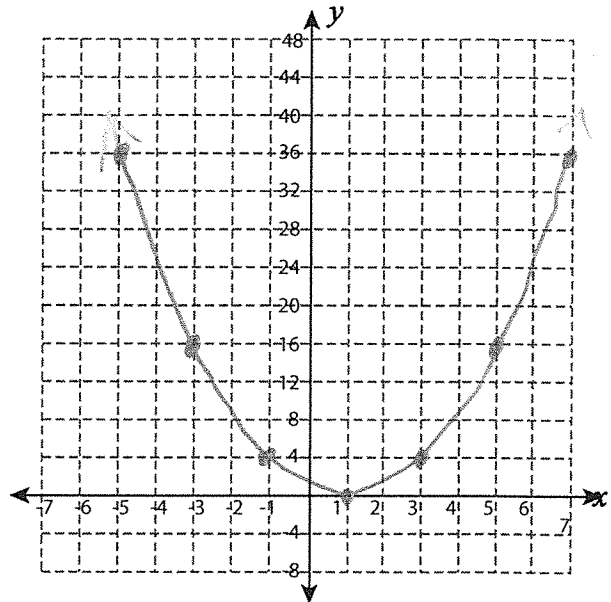
1) $f(x) = (x+2)^2$

x	-8	-6	-4	-2	0	2	4
$f(x)$	36	16	4	0	4	16	36



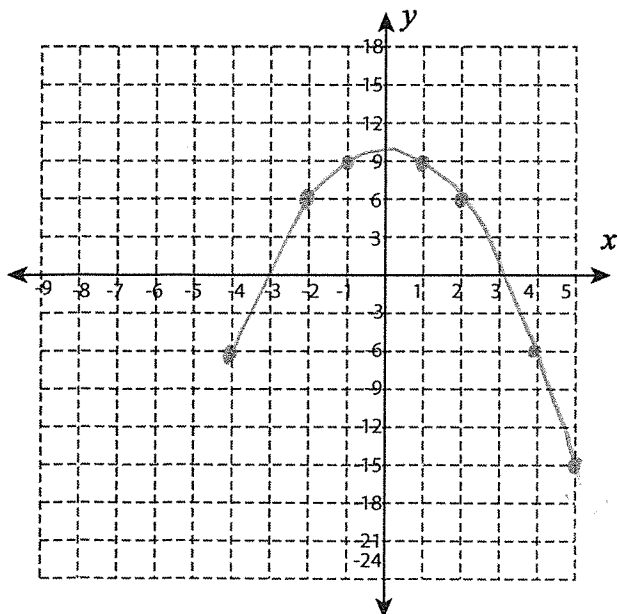
2) $f(x) = (x-1)^2$

x	-5	-3	-1	1	3	5	7
$f(x)$	36	16	4	0	4	16	36



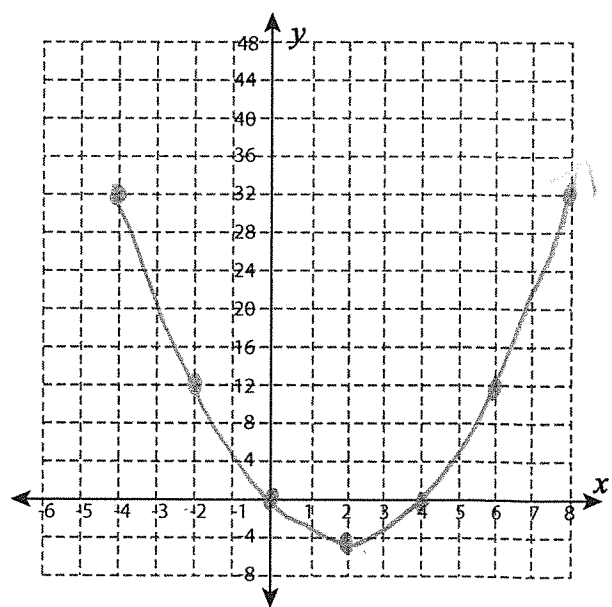
3) $f(x) = -x^2 + 10$

x	-4	-2	-1	1	2	4	5
$f(x)$	-6	6	9	9	6	-6	-15



4) $f(x) = (x-2)^2 - 4$

x	-4	-2	0	2	4	6	8
$f(x)$	32	12	0	-4	0	12	32

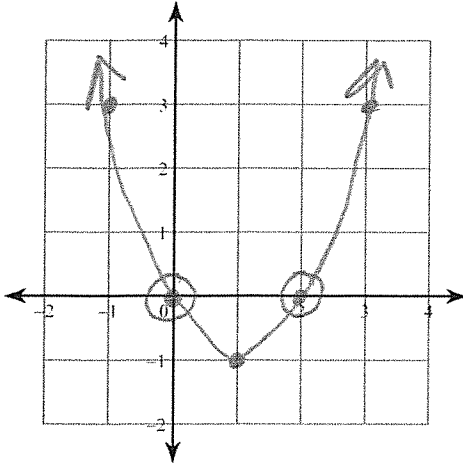


Sketch the graph of each function. Plot at least 5 Points each.

CIRCLE THE SOLUTIONS

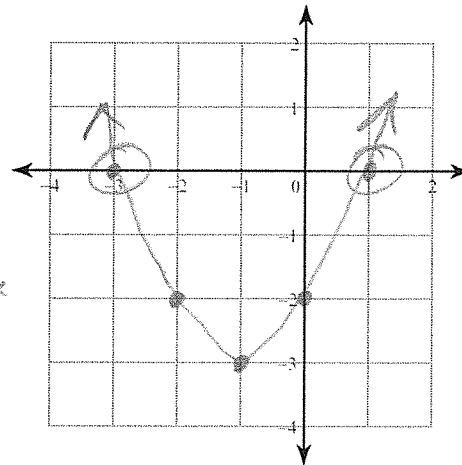
1) $f(x) = x^2 - 2x$

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



X	Y
-1	3
0	0
1	-1
2	0
3	3

VERTEX

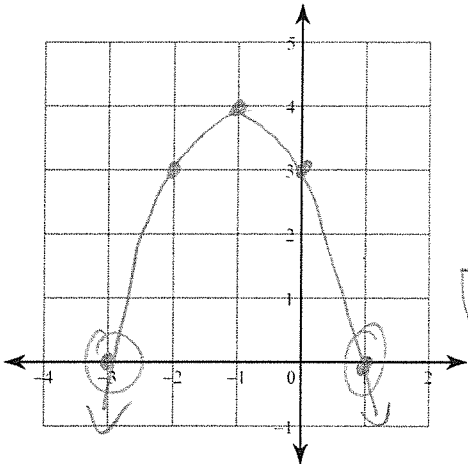


X	Y
-3	1
-2	-2
-1	-3
0	-2
1	1

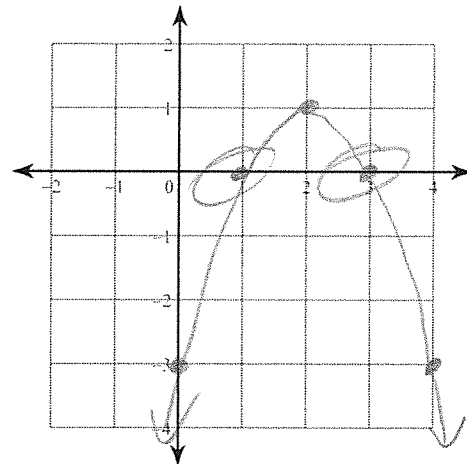
VERTEX

3) $f(x) = -x^2 - 2x + 3$

4) $f(x) = -x^2 + 4x - 3$



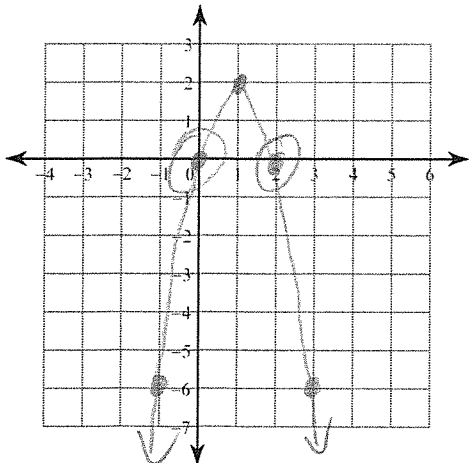
X	Y
-3	0
-2	3
-1	4
0	3
1	0



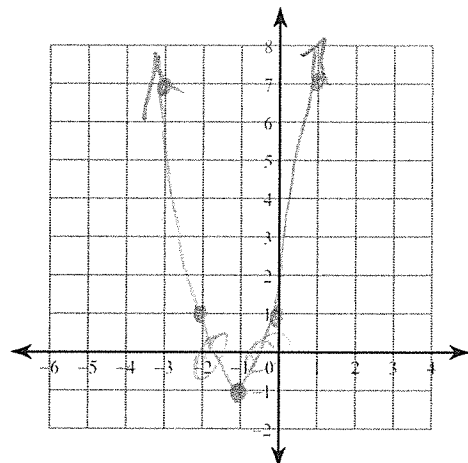
X	Y
0	-3
1	0
2	1
3	0
4	-3

5) $f(x) = -2x^2 + 4x$

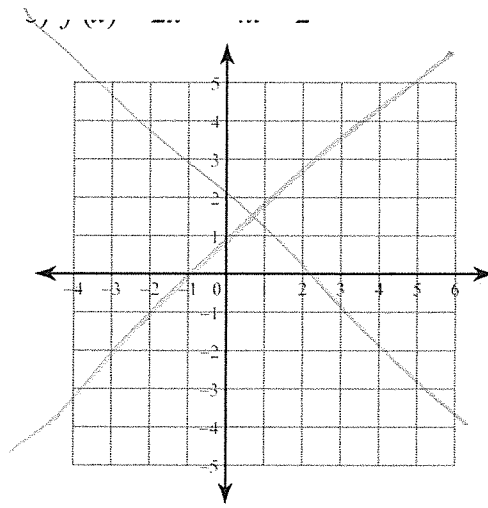
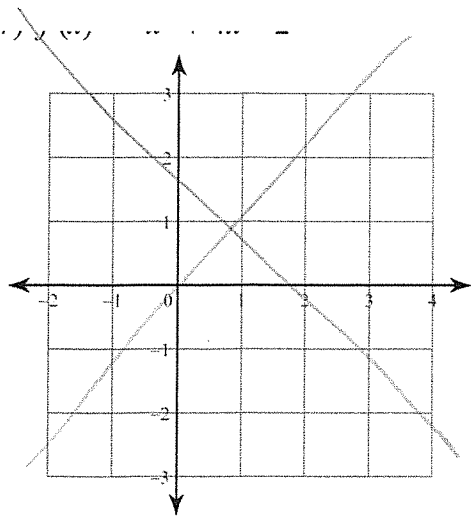
6) $f(x) = 2x^2 + 4x + 1$



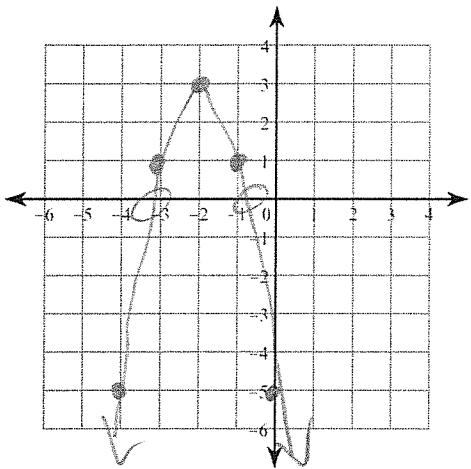
X	Y
-1	-6
0	0
1	2
2	0
3	-6



X	Y
-3	7
-2	1
-1	-1
0	1
1	7

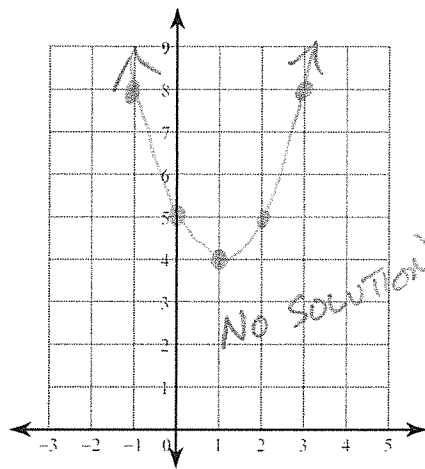


9) $f(x) = -2x^2 - 8x - 5$



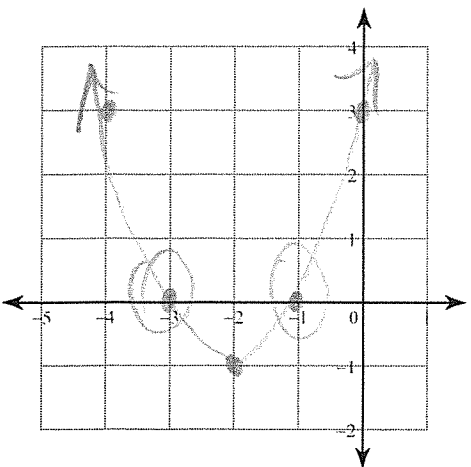
x	y
-4	-5
-3	1
-2	3
-1	1
0	-5

10) $f(x) = x^2 - 2x + 5$



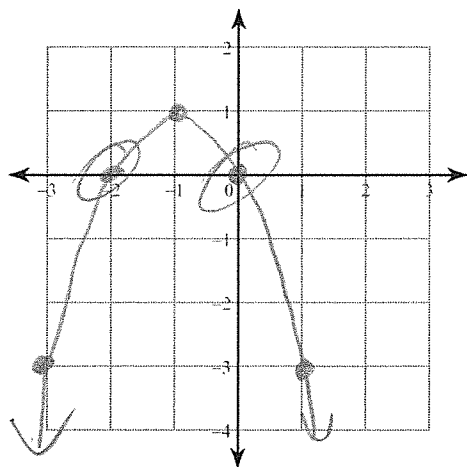
x	y
-1	8
0	5
1	4
2	5
3	8

11) $f(x) = x^2 + 4x + 3$



x	y
-4	3
-3	0
-2	-1
-1	0
0	3

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



x	y
-3	-3
-2	0
-1	1
0	0
1	-3

5.2.5 - Solving Quadratic Equations by Factoring

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Date _____ Period _____

Solve each equation by factoring. USE THE MAGIC BOX.

1) $b^2 + b - 30 = 0$

$$\begin{array}{r|l} -30 & 1 \\ \hline 6(-5) & 6-5 \end{array}$$

	b	6
b	b^2	$6b$
-5	$-5b$	-30

$$(b+6)(b-5) = 0$$

$$\begin{array}{r} b+6=0 \\ -6 \quad -6 \\ \hline b=-6 \end{array}$$

$$\begin{array}{r} b-5=0 \\ +5 \quad +5 \\ \hline b=5 \end{array}$$

3) $n^2 + 6n - 7 = 0$

$$\begin{array}{r|l} -7 & 6 \\ \hline 7(-1) & 7-1 \end{array}$$

	n	7
n	n^2	$7n$
-1	$-1n$	-7

$$(n+7)(n-1) = 0$$

$$\begin{array}{r} n+7=0 \\ -7 \quad -7 \\ \hline n=-7 \end{array}$$

$$\begin{array}{r} n-1=0 \\ +1 \quad +1 \\ \hline n=1 \end{array}$$

5) $a^2 - 144 = 0$ DIFFERENCE OF 2 SQUARES

$$(a+12)(a-12) = 0$$

$$\begin{array}{r} a+12=0 \\ -12 \quad -12 \\ \hline a=-12 \end{array}$$

$$\begin{array}{r} a-12=0 \\ +12 \quad +12 \\ \hline a=12 \end{array}$$

7) $x^2 - 12x + 20 = 0$

$$\begin{array}{r|l} 20 & -12 \\ \hline (-10)(-2) & -10-2 \end{array}$$

	x	-10
x	x^2	$-10x$
-2	$-2x$	20

$$(x-10)(x-2) = 0$$

$$\begin{array}{r} x-10=0 \\ +10 \quad +10 \\ \hline x=10 \end{array}$$

$$\begin{array}{r} x-2=0 \\ +2 \quad +2 \\ \hline x=2 \end{array}$$

9) $m^2 + 18m + 72 = 0$

$$\begin{array}{r|l} 72 & 18 \\ \hline 12(6) & 12+6 \end{array}$$

	m	12
m	m^2	$12m$
6	$6m$	72

$$(m+12)(m+6) = 0$$

$$\begin{array}{r} m+12=0 \\ -12 \quad -12 \\ \hline m=-12 \end{array}$$

$$\begin{array}{r} m+6=0 \\ -6 \quad -6 \\ \hline m=-6 \end{array}$$

11) $11x^2 - 176 = 0$ DIFFERENCE OF 2 SQUARES

$$11(x^2 - 16) = 0$$

$$11(x-4)(x+4) = 0$$

$$\begin{array}{r} x-4=0 \\ +4 \quad +4 \\ \hline x=4 \end{array}$$

$$\begin{array}{r} x+4=0 \\ -4 \quad -4 \\ \hline x=-4 \end{array}$$

13) $n^2 - 100 = 0$ DIFFERENCE OF 2 SQUARES

$$(n-10)(n+10) = 0$$

$$\begin{array}{r} n-10=0 \\ +10 \quad +10 \\ \hline n=10 \end{array}$$

$$\begin{array}{r} n+10=0 \\ -10 \quad -10 \\ \hline n=-10 \end{array}$$

SET EQUAL TO ZERO THEN SOLVE.

$$17) p^2 + 12p + 21 = -6$$

$$p^2 + 12p + 27 = 0$$

27	12
9(3)	4+3

P	9
P ²	9P
3P	27

$$(P+9)(P+3) = 0$$

$$P+9=0 \quad P+3=0$$

$$\frac{-9 \quad -9}{\boxed{P=-9}} \quad \frac{-3 \quad -3}{\boxed{P=-3}}$$

$$19) n^2 = -35 - 12n$$

$$n^2 + 12n + 35 = 0$$

35	12
5	7+5

n	7
n ²	7n
5n	35

$$(n+7)(n+5) = 0$$

$$n+7=0 \quad n+5=0$$

$$\frac{-7 \quad -7}{\boxed{n=-7}} \quad \frac{-5 \quad -5}{\boxed{n=-5}}$$

$$21) 12r = -27 - r^2$$

$$r^2 + 12r + 27 = 0$$

r	9
r ²	9r
3r	27

27	12
9(3)	4+3

$$(r+9)(r+3) = 0$$

$$r+9=0 \quad r+3=0$$

$$\frac{-9 \quad -9}{\boxed{r=-9}} \quad \frac{-3 \quad -3}{\boxed{r=-3}}$$

Teacher : _____

Date : _____

Solve Quadratics by Taking the Square Root

Find the value of the variable. Round to the nearest hundredth if necessary.

1) $q^2 = 40$
{6.32, -6.32}

$$\sqrt{q^2} = \pm \sqrt{40}$$
$$q = \pm 6.32$$

6) $y^2 = 28$
{5.29, -5.29}

$$\sqrt{y^2} = \pm \sqrt{28}$$
$$y = \pm 5.29$$

2) $g^2 = 16$
{4, -4}

$$\sqrt{g^2} = \pm \sqrt{16}$$
$$g = \pm 4$$

7) $w^2 = 14$
{3.74, -3.74}

$$\sqrt{w^2} = \pm \sqrt{14}$$
$$w = \pm 3.74$$

3) $b^2 = 64$
{8, -8}

$$\sqrt{b^2} = \pm \sqrt{64}$$
$$b = \pm 8$$

8) $y^2 = 64$
{8, -8}

$$\sqrt{y^2} = \pm \sqrt{64}$$
$$y = \pm 8$$

4) $w^2 = 10$
{3.16, -3.16}

$$\sqrt{w^2} = \pm \sqrt{10}$$
$$w = \pm 3.16$$

9) $z^2 = 64$
{8, -8}

$$\sqrt{z^2} = \pm \sqrt{64}$$
$$z = \pm 8$$

5) $r^2 = 20$
{4.47, -4.47}

$$\sqrt{r^2} = \pm \sqrt{20}$$
$$r = \pm 4.47$$

10) $g^2 = 100$
{10, -10}

$$\sqrt{g^2} = \pm \sqrt{100}$$
$$g = \pm 10$$