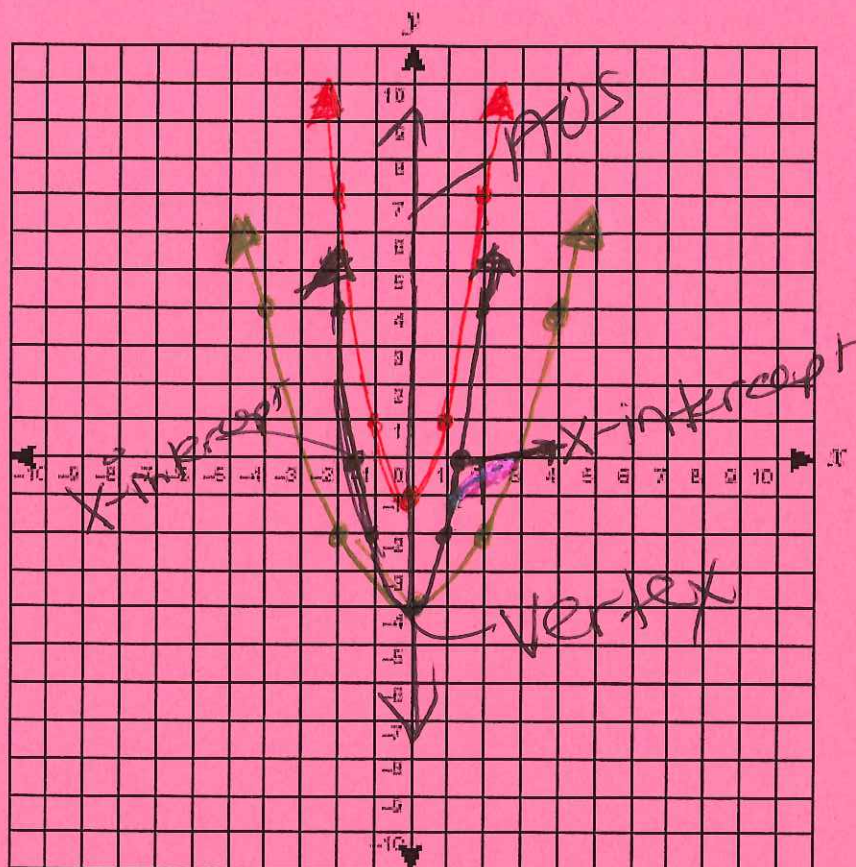


KEY

Name _____ Name _____

Problem 1



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

a.) Graph $y = 2x^2 - 4$.

b.) Draw and label the axis of symmetry. Write the equation for the axis of symmetry.

$$x = 0$$

c.) Label the x-intercepts and the vertex.

d.) If the parabola were translated up 3 spaces, what would the new equation be?

$$\begin{array}{r} 2x^2 - 4 \\ + 3 \\ \hline 2x^2 - 1 \end{array}$$

$$y = 2x^2 - 1$$

In a different color, draw the graph of the new equation. ✓

e.) In another different color, graph the equation if the coefficient of x^2 were changed to

$$\frac{1}{2}$$

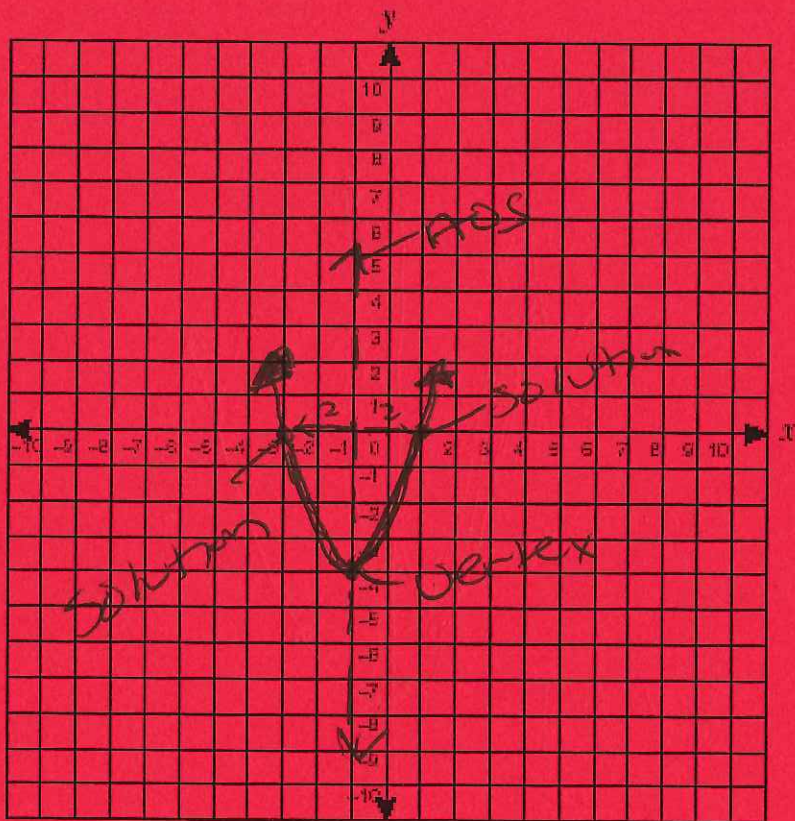
x	y
-4	4
-2	2
0	-4
2	-2
4	4

$$y = \frac{1}{2}x^2 - 4$$

2nd table

Problem 2

Key



a. The vertex of a parabola is $(-1, -4)$. One of the x -intercepts is $(-3, 0)$. What is the other solution?

Equidistant from
AOS

$(1, 0)$

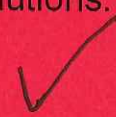
b. What is the equation of the parabola? $a=1$ $b=2$ $c=-3$

$$\begin{array}{r|l} x & y \\ -3 & 0 \\ -1 & -4 \\ 1 & 0 \end{array}$$

STAT EDIT
STAT CALC
S: QUAD

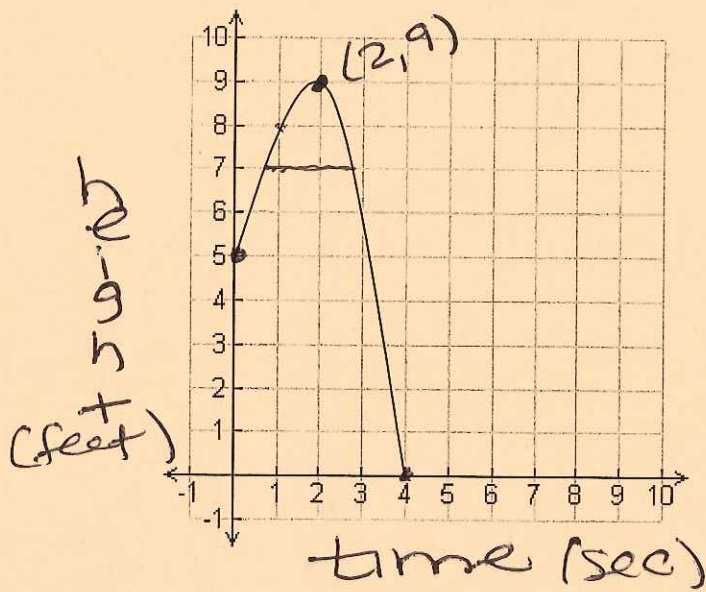
$$y = x^2 + 2x - 3$$

c. Graph the parabola and label the vertex, axis of symmetry, and solutions.



KEY

Problem 3



This graph represents the path of a baseball as it is hit by a batter (height vs. time).

a.) Label the axes *feet* and *seconds*. ✓

b.) How high was the ball when it was hit? *5 feet*

c.) How long did it take for the ball to hit the ground? *4 seconds*

d.) For how long was the ball above 7 feet? *2 seconds*

e.) Find an equation for this graph.

$$\begin{array}{r|l} x & y \\ 0 & 5 \\ 2 & 9 \\ 4 & 0 \end{array}$$

$$y = -1.625x^2 + 5.25x + 5$$

or

$$y = -\frac{13}{8}x^2 + \frac{21}{4}x + 5$$

KEY

Factoring Practice

use Zero Product Property

Solve each of these equations by factoring.

1.) $x^2 - x - 56 = 0$

$(x-8)(x+7) = 0$

2.) $x^2 + 2x - 35 = 0$

$(x+7)(x-5) = 0$

$\begin{array}{r} 56 \\ 7 \overline{) 56} \\ \underline{56} \\ 0 \end{array}$
 ~~$\begin{array}{r} -56 \\ -8 \quad +7 \\ \hline -1 \end{array}$~~

 $\boxed{x=8}$
 $\boxed{x=-7}$

$x-8=0$
 $x=8$
 $x+7=0$
 $x=-7$

$\begin{array}{r} 35 \\ 7 \overline{) 35} \\ \underline{35} \\ 0 \end{array}$
 ~~$\begin{array}{r} -35 \\ +7 \quad -5 \\ \hline 2 \end{array}$~~

 $\boxed{\{-7, 5\}}$

$x+7=0$
 $x=-7$
 $x-5=0$
 $x=5$

3.) $n^2 + 8n + 16 = 0$

$(n+4)(n+4) = 0$

4.) $x^2 + 13x + 22 = 0$

$(x+2)(x+11) = 0$

$\begin{array}{r} 16 \\ 4 \overline{) 16} \\ \underline{16} \\ 0 \end{array}$
 ~~$\begin{array}{r} 16 \\ 4 \quad 4 \\ \hline 8 \end{array}$~~

 $n+4=0$
 $n=-4$

 $\boxed{\{-4\}}$

$\begin{array}{r} 22 \\ 2 \overline{) 22} \\ \underline{22} \\ 0 \end{array}$
 ~~$\begin{array}{r} 22 \\ 2 \quad 11 \\ \hline 13 \end{array}$~~

 $\boxed{\{-11, -2\}}$

$x+2=0$
 $x=-2$
 $x+11=0$
 $x=-11$

5.) $x^2 - 9x + 14 = 0$

$(x-2)(x-7) = 0$

6.) $x^2 - 18x + 17 = 0$

$(x-1)(x-17) = 0$

$\begin{array}{r} 14 \\ 2 \overline{) 14} \\ \underline{14} \\ 0 \end{array}$
 ~~$\begin{array}{r} 14 \\ -2 \quad -9 \\ \hline -9 \end{array}$~~

 $x-2=0$
 $x=2$
 $x-7=0$
 $x=7$

 $\boxed{\{2, 7\}}$

$x-1=0$
 $x=1$
 $x-17=0$
 $x=17$

 $\boxed{\{1, 17\}}$

7.) $m^2 + 6m + 8 = 0$

$(m+2)(m+4) = 0$

8.) $m^2 + 6m + 9 = 0$

$(m+3)(m+3) = 0$

$\begin{array}{r} 8 \\ 2 \overline{) 16} \\ \underline{16} \\ 0 \end{array}$
 ~~$\begin{array}{r} 8 \\ 2 \quad 4 \\ \hline 6 \end{array}$~~

 $m+2=0$
 $m=-2$
 $m+4=0$
 $m=-4$

$m+3=0$
 $m=-3$

 $\boxed{\{-3\}}$

$\boxed{\{-4, -2\}}$