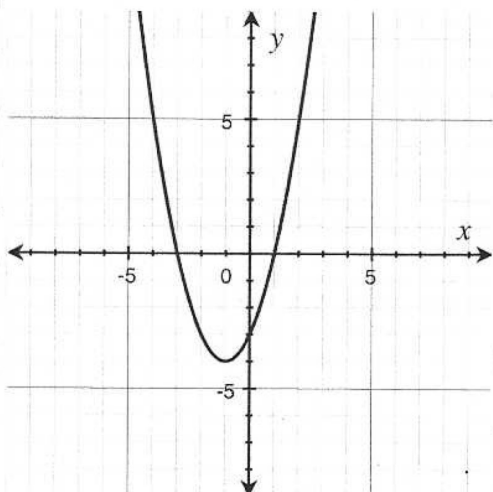


Classwork: Review for Quadratic Test

Name: Key Jan. 9 glue on page 95

1. What is the equation of the quadratic in standard form shown in the graph below? (hint: pages 92 & 93)



$$x = -3 \quad x = 1$$

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

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

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

Equation:

$$\underline{y = x^2 + 2x - 3}$$

2. Graph the quadratic $y = x^2 - 6x + 5$. Then state the following:
(hint: pages 85 & 86) $0 = (x - 5)(x - 1)$

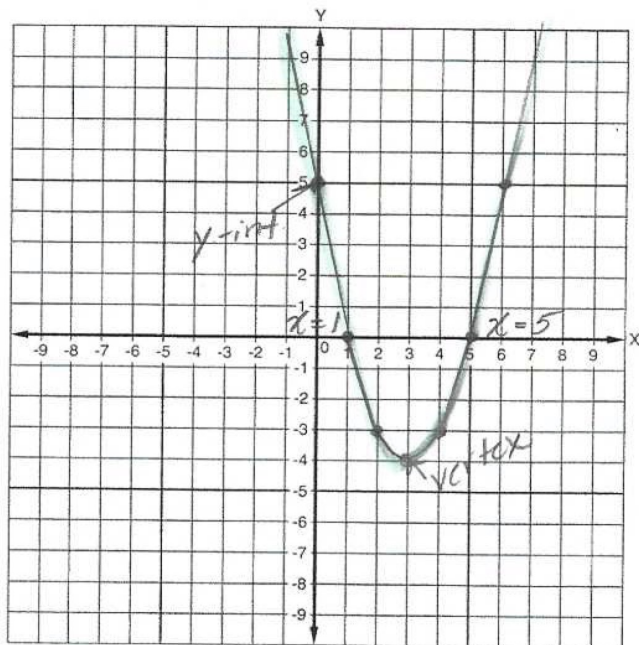
vertex $(3, -4)$

x-intercepts $\{1, 5\}$

y-intercept $(0, 5)$

max/min min

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



3. Is the solution to the quadratic equation: $y = 3x^2 + 2x - 6$ rational or irrational? Justify your answer. (hint: use the graphing calculator & explain your reasoning)

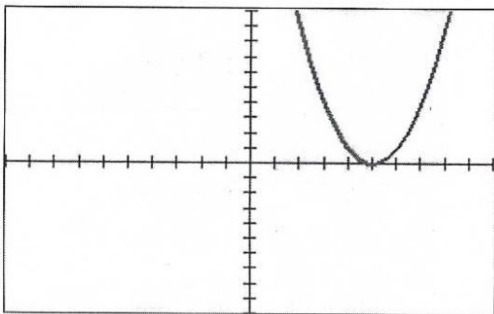
$$0 = 3x^2 + 2x - 6 \quad a=3, b=2, c=-6$$

irrational roots

$$x = \frac{-2 \pm \sqrt{(2)^2 - 4(3)(-6)}}{2(3)}$$

$$x = \frac{-2 \pm \sqrt{76}}{6} = \text{irrational} \quad \#5$$

4. What is the equation of the parabola shown in the graph below? Hint: it's a double root)



$$x = 5 \quad x = 5$$

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

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

$$0 = x^2 - 5x - 5x + 25$$

$$y = x^2 - 10x + 25$$

Equation:

DOTS

5. Which expression is equivalent to $81 - 16x^2$?

~~(1) $(9-8x)(9+8x)$~~

(3) $(9-4x)(9+4x)$

~~(2) $(9-8x)(9+2x)$~~

~~(4) $(9-4x)(9-4x)$~~

6. If the area of a rectangle is represented by $x^2 + 12x + 20$ and its length is represented by $x + 10$, what can represent the width of the rectangle? (hint: page 34)

$$\begin{array}{|c|c|} \hline x+2 & \\ \hline x & x^2+2x \\ \hline +10 & +10x+20 \\ \hline \end{array} \quad \text{width} = x+2$$

7. Find the zeros/roots of the quadratic: $y - 5 = x^2 + 6x + 3$ (hint: set = 0)

$$a=1, b=6, c=3$$

$$y = x^2 + 6x + 3$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-6 \pm \sqrt{(6)^2 - 4(1)(3)}}{2(1)}$$

$$x = \frac{-6 \pm \sqrt{12}}{2} = \begin{cases} \frac{-6 + \sqrt{12}}{2} = -1.267... \\ \frac{-6 - \sqrt{12}}{2} = -4.732... \end{cases}$$

8. Find **algebraically** (by substitution, you can use the graph to check your answer) the equation of the axis of symmetry and the vertex of the parabola represented by the equation $y = -x^2 - 2x + 1$. $a=-1, b=-2, c=1$

$$x = \frac{-b}{2a}$$

$$y = -(-1)^2 - 2(-1) + 1$$

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

$$y = -1 + 2 + 1$$

$$y = 2$$

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

$$\text{vertex } (-1, 2)$$

$$x = -1$$

axis of sym

9. When $2x^2 - 3x + 2$ is subtracted from $4x^2 - 5x + 2$, the result is

$$\begin{array}{r} 4x^2 - 5x + 2 \\ -2x^2 + 3x - 2 \\ \hline 2x^2 - 2x \end{array}$$