Name: Key Date:

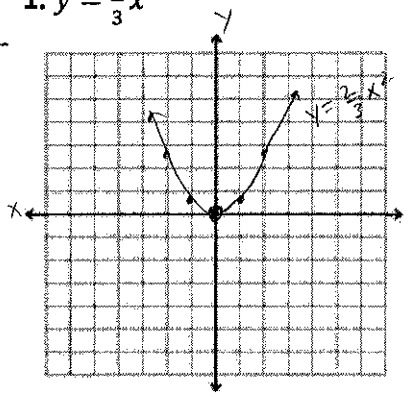
Algebra 1 Band:

Unit 8: Quadratic Functions & Equations PBA Practice

Graph *at least 5 points* of each function by making a table of values. Label the axis of symmetry and the vertex.

1. $y = \frac{2}{3}x^2$

x	y
-2	8/3
-1	2/3
0	0
1	2/3
2	8/3



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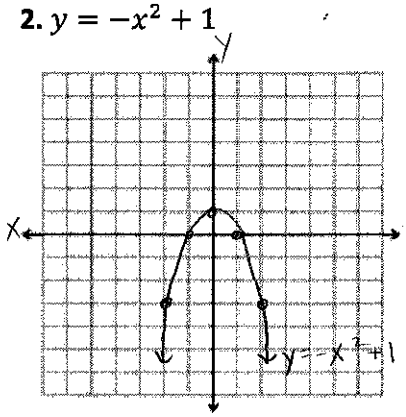
2. $y = -x^2 + 1$

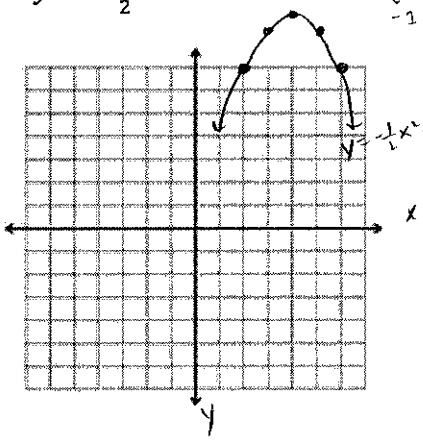
x	y
-2	-3
-1	0
0	1
1	0
2	-3



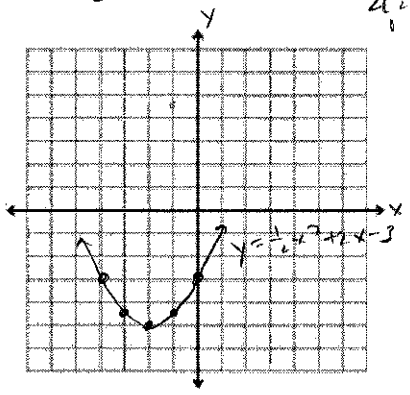
3. $y = -\frac{1}{2}x^2 + 4x + 1$ $x = \frac{-4}{2(-\frac{1}{2})} = 4$

x	y
2	7
3	8.5
4	9
5	8.5
6	7

x	y
-4	-3
-3	-4.5
-2	
-1	-4.5
0	-3



4. $y = \frac{1}{2}x^2 + 2x - 3$ $x = \frac{-2}{2(\frac{1}{2})} = -2$



Solve each equation. If the equation has no real-number solution, *write no solution*.

5. $6(x^2 - 2) = 12$

$\frac{6}{} \quad \frac{6}{}$

$x^2 - 2 = 2$

$+2 \quad +2$

$x^2 = 4$

$\sqrt{x^2} = \sqrt{4}$

$x = 2$ $x = -2$

6. $-5m^2 = -125$

$\frac{-5}{} \quad \frac{-5}{}$

$m^2 = 25$

$\sqrt{m^2} = \sqrt{25}$

$m = 5$ $m = -5$

7. $9(w^2 + 1) = 9$

$\frac{9}{} \quad \frac{9}{}$

$w^2 + 1 = 1$

$-1 \quad -1$

$w^2 = 0$

$w = 0$

8. $3r^2 + 27 = 0$

$-27 \quad -27$

$\frac{3r^2}{3} = \frac{-27}{3}$

$r^2 = -9$

no solution

9. $\frac{4}{9} = \frac{9k^2}{9}$

$\frac{4}{9} = k^2$

$\sqrt{\frac{4}{9}} = \sqrt{k^2}$

$k = \frac{2}{3}$ $k = -\frac{2}{3}$

10. $\frac{4n^2}{4} = \frac{64}{4}$

$n^2 = 16$

$\sqrt{n^2} = \sqrt{16}$

$n = 4$ $n = -4$

Solve by factoring.

11. $x^2 + 7x + 12 = 0$

$(x+4)(x+3) = 0$

$x + 4 = 0$ $\quad$ $x + 3 = 0$

$-4 \quad -4$ $\quad$ $-3 \quad -3$

$x = -4$ $\quad$ $x = -3$

12. $5x^2 - 10x = 0$

$5x(x - 2) = 0$

$\frac{5x}{5} = \frac{0}{5}$ $\quad$ $x - 2 = 0$

$+2 \quad +2$

$x = 0$ $\quad$ $x = 2$

13. $2x^2 - 9x = x^2 - 20$

$-x^2 + 20 \quad -x^2 + 20$

$x^2 - 9x + 20 = 0$

$(x - 5)(x - 4) = 0$

$x - 5 = 0$ $\quad$ $x - 4 = 0$

$+5 \quad +5$ $\quad$ $+4 \quad +4$

$x = 5$ $\quad$ $x = 4$

14. $2x^2 + 5x = 3$

$-3 \quad -3$

$2x^2 + 5x - 3 = 0$

$(2x - 1)(x + 3) = 0$

$2x - 1 = 0$ $\quad$ $x + 3 = 0$

$+1 \quad +1$ $\quad$ $-3 \quad -3$

$\frac{2x}{2} = \frac{1}{2}$ $\quad$ $x = -3$

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

15. $3x^2 - 5x = -3x^2 + 6$

$+3x^2 - 6 \quad +3x^2 - 6$

$6x^2 - 5x - 6 = 0$

$(3x + 2)(2x - 3) = 0$

$3x + 2 = 0$ $\quad$ $2x - 3 = 0$

$-2 \quad -2$ $\quad$ $+3 \quad +3$

$\frac{3x}{3} = \frac{-2}{3}$ $\quad$ $\frac{2x}{2} = \frac{3}{2}$

$x = -\frac{2}{3}$ $\quad$ $x = \frac{3}{2}$

16. $x^2 - 5x + 4 = 0$

$(x - 4)(x - 1) = 0$

$x - 4 = 0$ $\quad$ $x - 1 = 0$

$+4 \quad +4$ $\quad$ $+1 \quad +1$

$x = 4$ $\quad$ $x = 1$