

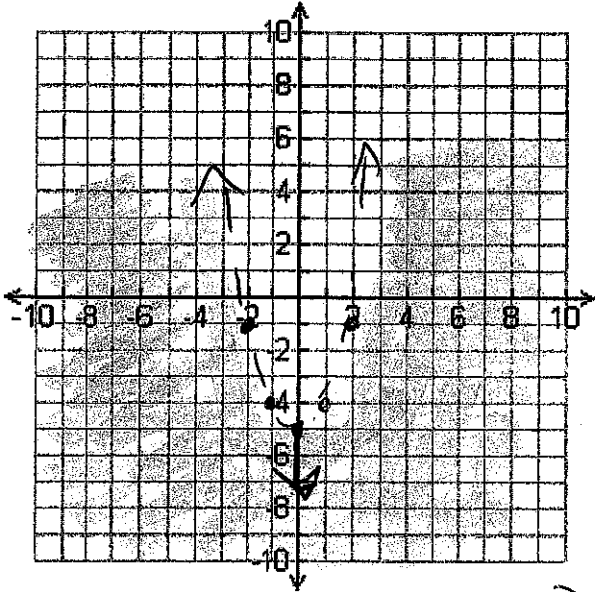
ASRNaley-mend dump.

< > ≤ ≥
dashed ← →

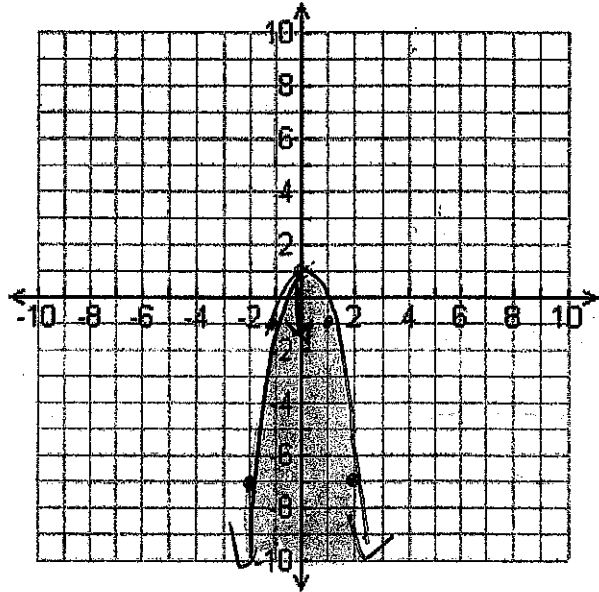
Name _____ Algebra Quadratic Graphing TEST REVIEW

Graph the following quadratic functions:

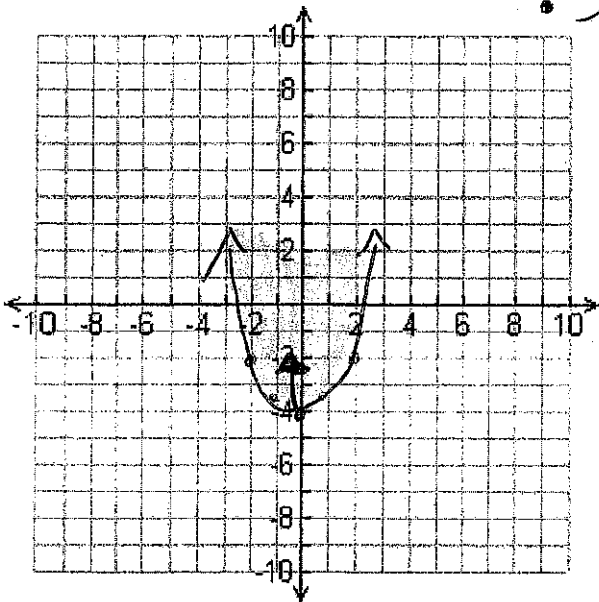
1. $y < x^2 - 5$



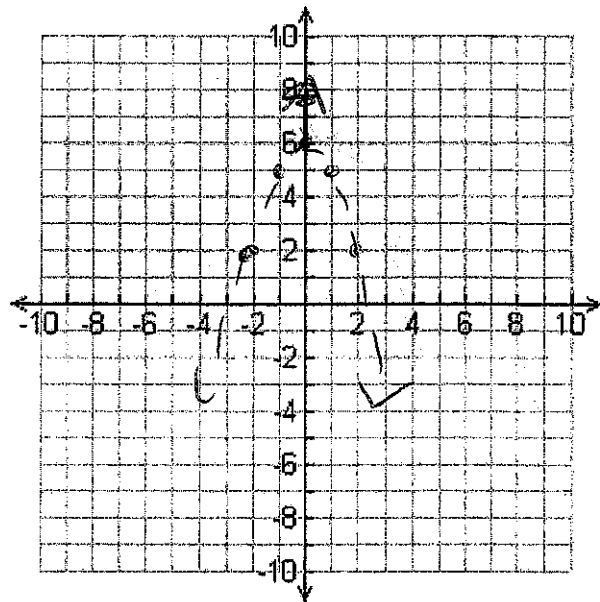
2. $y \leq -2x^2 + 1$



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



4. $y > -x^2 + 6$



$$x = \frac{7}{2(-2)} = \frac{7}{-4} = -1.75$$

5. $y = -2x^2 - 7x + 1$

AOS $x = -1.75$ $x = \frac{-b}{2a}$

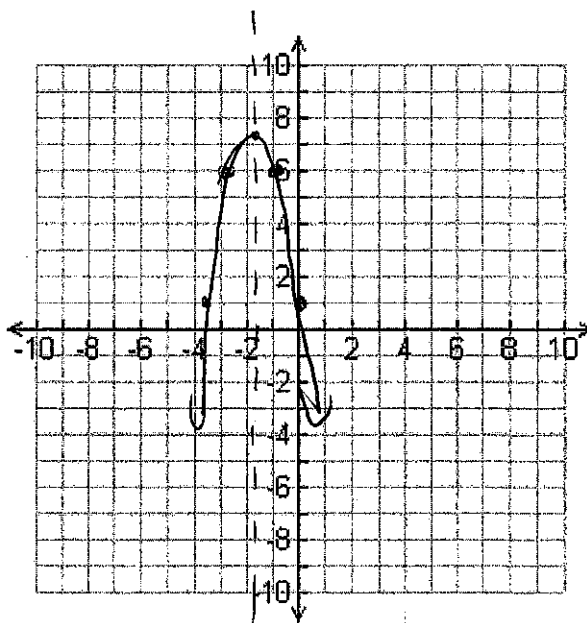
Vertex $(-1.75, 7.125)$

y-intercept $(0, 1)$

domain \mathbb{R}

range $y \leq 7.125$

$(-1, 6)$



$(-1 \div 3)$

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

AOS $x = -3$

Vertex $(-3, -2)$

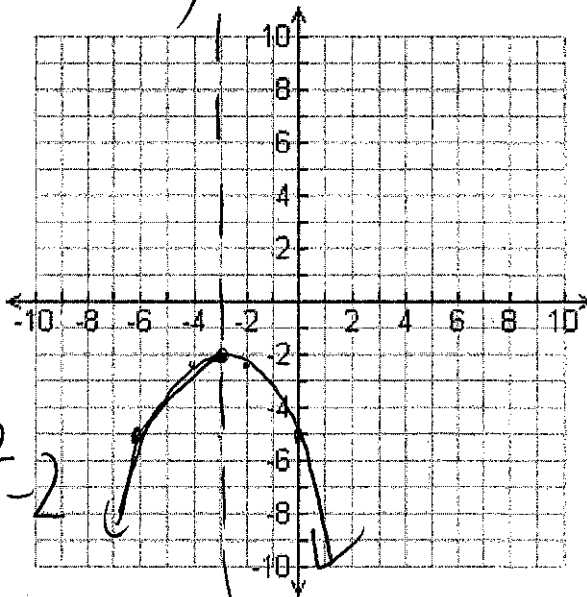
y-intercept $(0, -9)$ $-\frac{1}{3}(0+3)^2 - 2$

domain \mathbb{R}

range $y < -2$

$(-2, -2\frac{1}{3})$

$(-\frac{1}{3})(-2+3)^2 - 2$
 $-2\frac{1}{3}$



7. Write the functions in order from most narrow to widest

A. $y = |x^2 - 3x$

B. $y = -3x^2 + 5x - 1$

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

D. $y = 5x^2 - 2$

E. $y = \frac{1}{5}x^2 + 5$

D $y = 5x^2 - 2$, B $y = -3x^2 + 5x - 1$, A $y = x^2 - 3x$

C, E

$$X + 3$$

Without graphing, answer the following:

8. $y = \frac{1}{4}(x - 24)^2 + 50$

A. AOS $X = 24$

B. vertex $(24, 50)$

C. y-intercept $(0, 194)$ $\frac{1}{4}(0 - 24)^2 + 50$

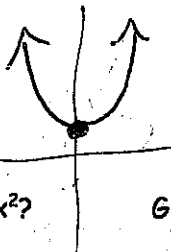
D. Domain \mathbb{R}

E. Range $y \geq 50$

F. vertex is max/min? min

G. graph is more wide or narrow than $y = x^2$?

wide



9. $y = -5x^2 + 28x - 24$

A. AOS $X = 2.8$ $X = \frac{-b}{2a}$

B. vertex $(2.8, 15.2)$

C. y-intercept $(0, -24)$ $X = \frac{-28}{-5}$

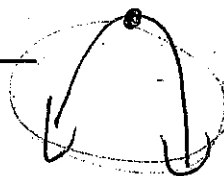
D. Domain \mathbb{R} $2(-5)$

E. range $y \leq 15.2$ $X = -28$

F. vertex is max/min? max -10

G. graph is more wide or narrow than $y = x^2$?

narrow



For #10-14 write a function in vertex form:

10. $y = -2x^2 - 12x + 20$

$y = a(x-h)^2 + k$ $X = \frac{12}{2(-2)} = -3$
 $y = -2(x+3)^2 + 38$ $(-3, 38)$
 $a = -2$

11. $y = 5x^2 + 40x + 12$

$y = 5(x+4)^2 - 68$ $X = \frac{-40}{2(5)} = -4$
 $X = -4$
 $(-4, -68)$

12. contains $(0, 104)$ vertex is $(12, 8)$

$y = a(x-h)^2 + k$
 $104 = a(0-12)^2 + 8$

$104 = 144a + 8$
 -8

$96 = 144a$

$\frac{96}{144} = \frac{144a}{144}$ $a = \frac{2}{3}$

$y = \frac{2}{3}(x-12)^2 + 8$

13. Contains $(0, -2)$ vertex $(-1, -7)$

$y = a(x-h)^2 + k$
 $-2 = a(0+1)^2 - 7$

$-2 = a - 7$
 $+7$ $+7$

$5 = a$

$y = 5(x+1)^2 - 7$

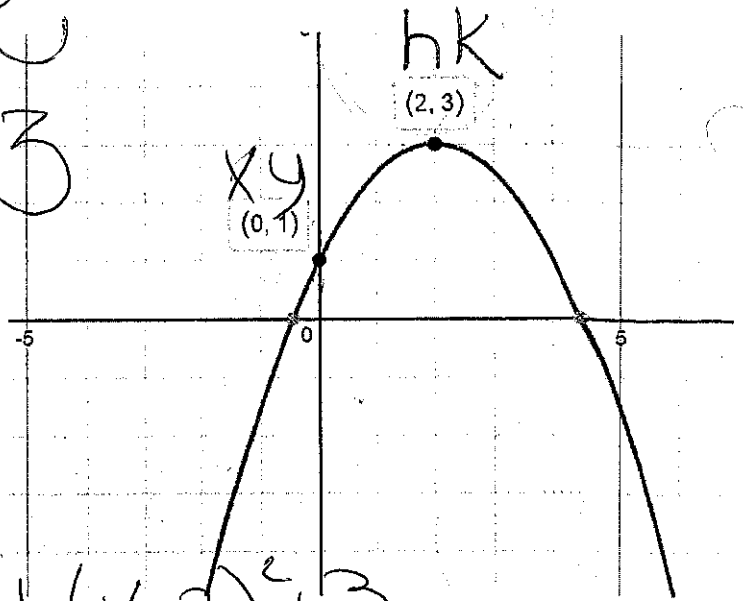
14. $y = a(x-h)^2 + k$

$1 = a(0-2)^2 + 3$

$1 = 4a + 3$
 $-3 \quad -3$

$\frac{-2}{4} = \frac{4a}{4}$

$-1/2 = a$ $y = -1/2(x-2)^2 + 3$



15. A ball is thrown with an initial upward velocity of 50 ft/s. Its height h in feet after t seconds is given by the function $h = -16t^2 + 50t + 6$.

A. After how many seconds does the ball reach its maximum height?

1.5625 $x = -50$

B. What is the maximum height?

45.0625

$2(-16)$

$\frac{-50}{-32}$
 1.5625

16. A small company markets a new toy. The function $S = -64p^2 + 2400p$ predicts in dollars, the total sales S as a function of the price p of a toy.

A. If the price is \$25, what are the total sales?

80,000 Price = P $-64(25)^2 + 2400(25)$

B. Which price will produce the highest sales?

\$18.75

C. What is the maximum sales predicted?

80,500

$-64(18.75)^2 + 2400(18.75)$ $x = \frac{-2400}{2(-64)} = \frac{-2400}{-128}$
 $x = 18.75$