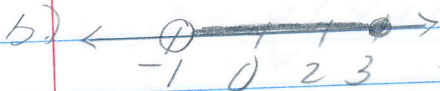


Classwork & finish for h.w. 4/10

Review

1.) $(-1, 3]$

choice 1



c.) -1 is not included
b/c (means not included.

2.) choice 2 is a function b/c the x-values do not repeat

b.) $f(n) = (n-1)^2 + 3n$
 $f(3) = (3-1)^2 + 3(3)$
 $= (2)^2 + 9$

$f(3) = 13$

c.) choice 1

3.) vertex $(-2, -6)$

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

$f(x) = (x+2)^2 - 6$ ← vertex form

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

$f(x) = x^2 + 4x - 2$ ← standard form

b.) $0 = (x+2)^2 - 6$

$+6 \qquad +6$

$\sqrt{6} = \sqrt{(x+2)^2}$

$\pm\sqrt{6} = x+2$

$-2 \qquad -2$

$(-2 \pm \sqrt{6} = x)$ → roots/zeros/x-intercepts

c.) domain: all real #s
range: $y \geq -6$

4) Piecewise function:

$f(x) = \begin{cases} 2 & x < 0 \\ -x+4 & x \geq 0 \end{cases}$
"y"

$$5) a) K = am + 3mx$$

$$\frac{K}{a+3x} = \frac{m(a+3x)}{a+3x}$$

$$(1) \quad \boxed{a = \frac{K}{a+3x}}$$

$$b) \quad \frac{V}{\pi r^2} = \frac{\pi r^2 h}{\pi r^2}$$

$$(2) \quad \boxed{V = h}$$

$$6) \quad \frac{y+3}{-3} < \frac{2x}{-3}$$

$$y < 2x - 3$$

$$m=2, b=-3$$

dotted ↓

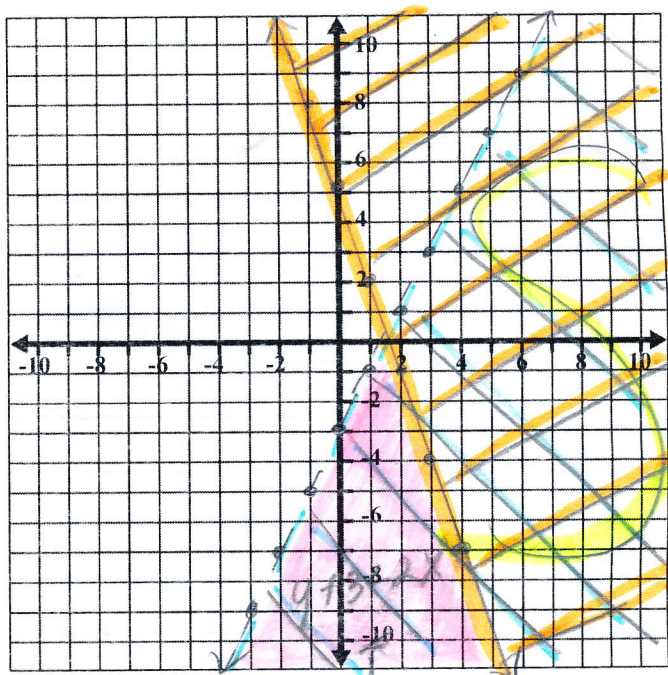
$$\frac{-6x - 2y \leq -10}{+6x} \quad \frac{+6x}{+6x}$$

$$\frac{-2y \leq 6x - 10}{-2} \quad \frac{-2y \leq 6x - 10}{-2}$$

$$y > -3x + 5$$

Solid

Shade ↑



any point in
the pink area

$$7.) f(x) = 3x^2 + 6x + 1 \quad x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

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

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

$$\sqrt{\frac{2}{3}} = \sqrt{(x+1)^2}$$

$$x = \frac{-6 \pm \sqrt{24}}{6}$$

$$\pm \sqrt{\frac{2}{3}} = x + 1$$

$$\frac{-1 \pm \sqrt{\frac{2}{3}}}{-1} = x$$

$$\begin{array}{c} 6 \\ \swarrow \quad \searrow \\ (-0.2) \quad (-1.8) \end{array}$$

$$\frac{-1 + \sqrt{2}}{\sqrt{3}} = x$$

$$(-0.2) \quad (-1.8)$$

$$8.) p(x) = -16x^2 + 32x$$

use graphing calc

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

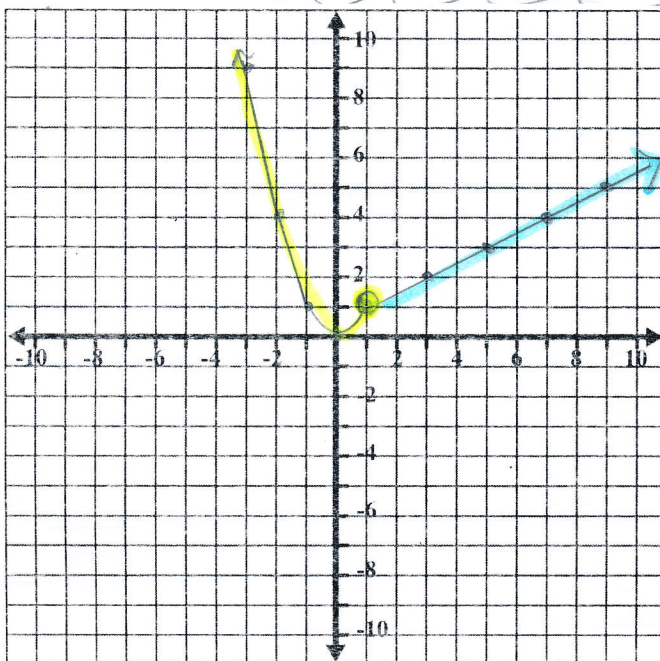
$$\frac{-16x}{-16} = \frac{0}{-16} \quad x = 2$$

$$x = 0$$

x	y = p(x)
0	0
1	16
2	0

(at 2 seconds) hit ground

9.)



10.) Let $x = \# \text{ of pigs} = 2 \text{ pigs}$
 $y = \# \text{ of ducks} = 5 \text{ ducks}$

$$\begin{array}{r} -2(x+y=7) \rightarrow -2x-2y=-14 \\ 4x+2y=18 \rightarrow \underline{4x+2y=18} \\ \hline 2x = 4 \\ \hline x = 2 \end{array}$$

$$\begin{array}{r} x+y=7 \\ 2+y=7 \\ \hline y=5 \end{array}$$

$$x=2$$

11.) $h(x) = b(x-2) - 3$

right 2 units down 3 units
 $b(x)$ moved to the right 2 units
 and moved down 3 units

12.) vertex $(-3, -9)$ $a=2$ Ratio
 used $2(1, 3, 5)$

b.) $f(x) = 2(x+3)^2 - 9$ $2, 6, 10$

$$\begin{array}{r} 0 = 2(x+3)^2 - 9 \\ +9 \qquad \qquad +9 \\ \hline 9 = 2(x+3)^2 \\ \hline \frac{9}{2} = (x+3)^2 \\ \sqrt{\frac{9}{2}} = \sqrt{(x+3)^2} \end{array}$$

$$\frac{+3}{\sqrt{2}} = x+3$$

$$\begin{array}{r} -3 \\ \hline -3 + \frac{3}{\sqrt{2}} = x \end{array}$$

-0.879 -5.121

