

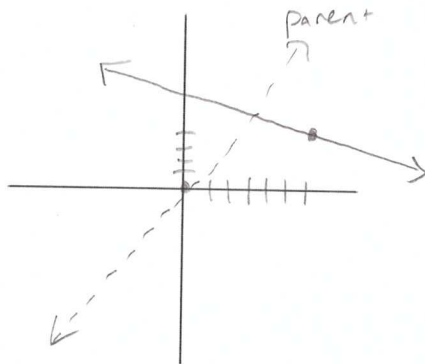
For the following problems, list the parent graph, shape, and the transformations. Then graph the parent graph and the new function on graph paper and send a photo of it to me.

1) $f(x) = -\frac{1}{2}(x-6) + 4$

Parent Graph: $y = x$ Linear (no exponent, no absolute value)

Shape:

Transformations:
 right 6 ($h=6$)
 up 4 ($k=4$)
 reflected ($a=-1/2$)
 compressed ($a=-1/2$)
 Graph:

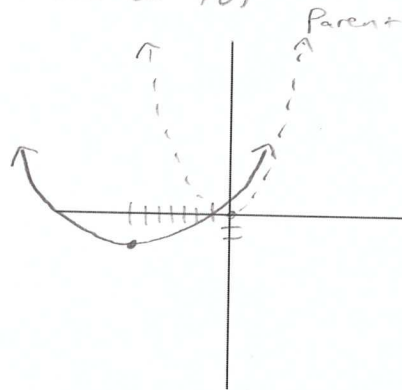


2) $y = \frac{1}{2}(x+7)^2 - 2$

Parent Graph: $y = x^2$ Quadratic (exponent + 2)

Shape:

Transformations:
 left 7 ($h=-7$)
 down 2 ($k=-2$)
 not reflected ($a=1/2$)
 compressed ($a=1/2$)
 Graph:



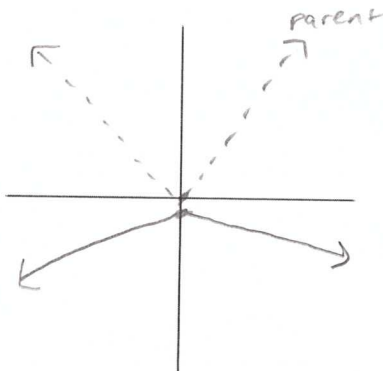
* $(x-h)$ right
 $(x+h)$ left
 $+k$ up
 $-k$ down
 $a < 0$ reflect across x-axis
 $0 < |a| < 1$ vertical compression
 $|a| > 1$ vertical stretch

3) $f(x) = -\frac{1}{3}|x| - 1$

Parent Graph: $y = |x|$ Absolute Value (has $|x|$)

Shape:

Transformations:
 no right/left ($h=0$)
 down 1 ($k=1$)
 reflected ($a=-1/3$)
 compressed ($a=-1/3$)
 Graph:

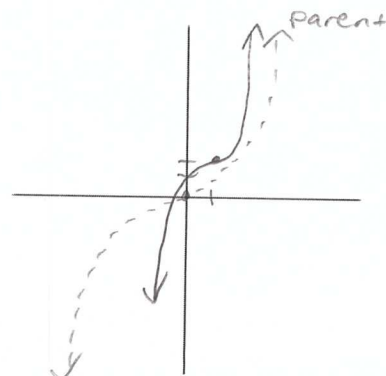


4) $g(x) = 2(x-1)^3 + 2$

Parent Graph: $y = x^3$ Cubic (exponent + 3)

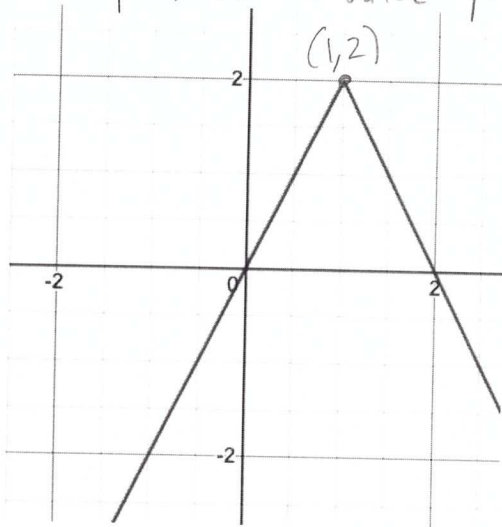
Shape:

Transformations:
 right 1 ($h=1$)
 up 2 ($k=2$)
 not reflected ($a=2$)
 stretched ($a=2$)
 Graph:



Write the equation for the given graph.

5) V shape \rightarrow absolute value $y = |x|$ 6)



Equation: $y = -2|x - 1| + 2$

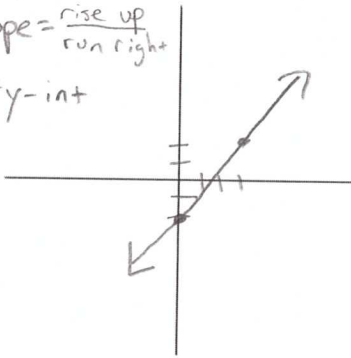
reflected $\rightarrow a < 0$
 stretched $\rightarrow |a| > 1$
 right 1 $\rightarrow h = 1$
 up 2 $\rightarrow k = 2$

Graph each line and state its slope and y-intercept.

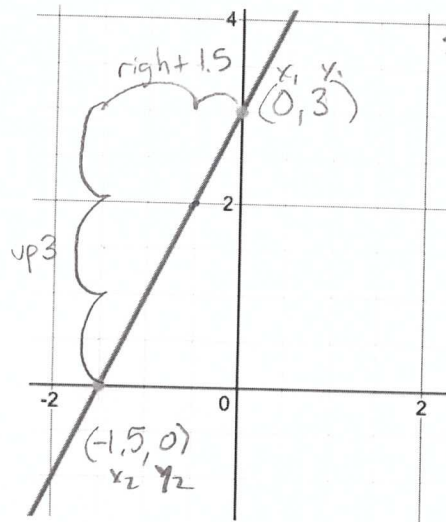
7) $y = \frac{4}{3}x - 2$

$y = mx + b$

$m = \text{slope} = \frac{\text{rise up}}{\text{run right}}$
 $(0, b) = y\text{-int}$



Slope: $\frac{4}{3}$ up 4 right 3 or $\frac{-4}{-3}$ down 4 left 3
 y-intercept: $(0, -2)$



Slope $m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{0 - 3}{-1.5 - 0}$
 $= \frac{-3}{-1.5} = 2$

Equation: $y = 2x + 3$ or $y - 0 = 2(x + 1.5)$
 $y - 3 = 2(x - 0)$

$y = mx + b$
 $(0, b) = y\text{-int}$

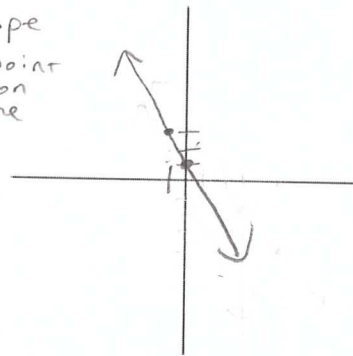
$y - y_1 = m(x - x_1)$
 $(x_1, y_1) = \text{point on line}$

8) $y - 3 = -2(x + 1)$

$y - y_1 = m(x - x_1)$

$(x_1, y_1) = (-1, 3)$

$m = \text{slope}$
 $(x_1, y_1) = \text{point on line}$



Slope: $-2 = -\frac{2}{1}$ down 2 right 1 or $\frac{2}{-1}$ up 2 left 1
 y-intercept: $(0, 1)$

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

$y - 3 = -2x - 2$

$y = -2x + 1$