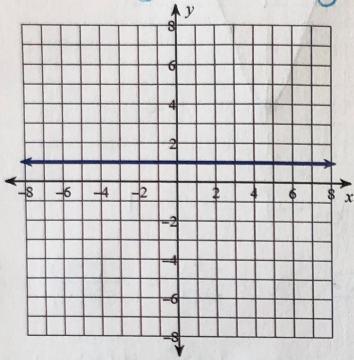


Unit 1 Review - Class Notes

For each graph below, give the parent function name and equation.

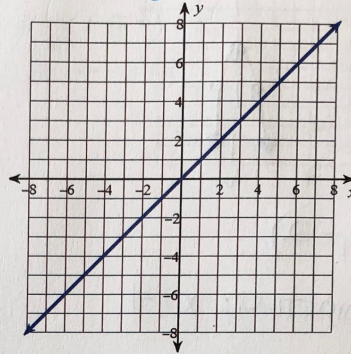
1) name: CONSTANT FUNCTION

equation: $y = 1$ or $y = c$



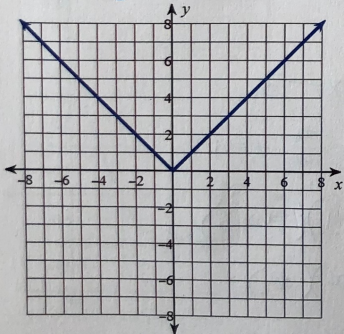
2) name: LINEAR FUNCTION

equation: $y = x$



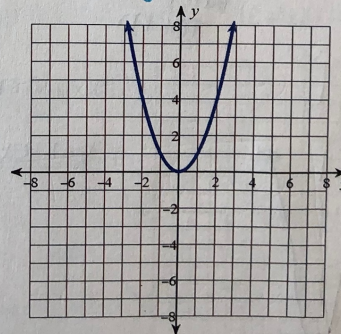
3) name: ABSOLUTE VALUE FUNCTION

equation: $y = |x|$



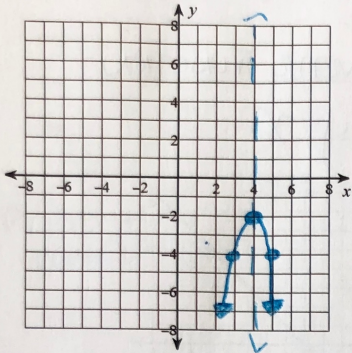
4) name: QUADRATIC FUNCTION

equation: $y = x^2$



Identify the vertex and axis of symmetry of each parabola. Then sketch the graph.

5) $f(x) = -2(x-4)^2 - 2$ VERTEX FORM



VERTEX: $(4, -2)$

AXIS OF SYMMETRY: $x = 4$

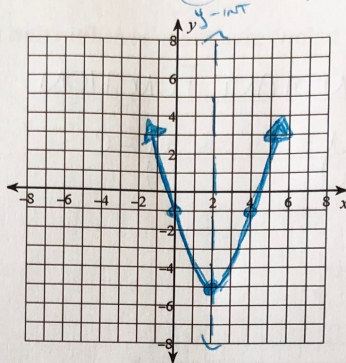
OTHER POINT:

1) USE a-VALUE TO MOVE RIGHT 1 AND DOWN 2 FROM VERTEX

2) OR, PICK AN x-VALUE AND PLUG IT INTO THE EQUATION.

$$\begin{aligned} y &= -2(5-4)^2 - 2 \\ &= -2(1)^2 - 2 \\ &= (-4) \rightarrow (5, -4) \end{aligned}$$

6) $f(x) = x^2 - 4x - 1$ STANDARD FORM



$a: 1 \quad b: -4 \quad c: -1$

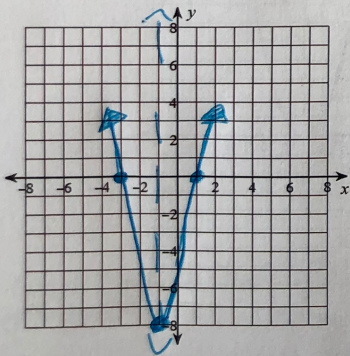
VERTEX: $x = \frac{-b}{2a} = \frac{-(-4)}{2(1)} = \frac{4}{2} = (2)$

$$\begin{aligned} y &= (2)^2 - 4(2) - 1 \\ &= 4 - 8 - 1 \\ &= -4 - 1 \\ &= (-5) \rightarrow (2, -5) \end{aligned}$$

AXIS OF SYMMETRY: $x = 2$

*USE THE y-INTERCEPT TO PLOT ANOTHER POINT.

7) $f(x) = 2(x-1)(x+3)$ INTERCEPT FORM



x-INTERCEPTS: $x = 1, x = -3$

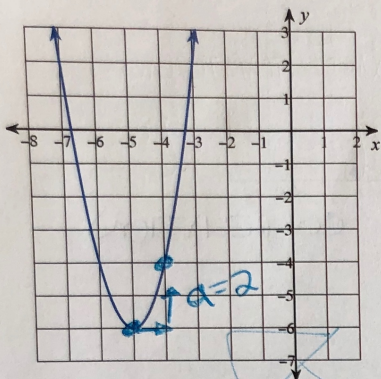
VERTEX: $x = \frac{1+(-3)}{2} = \frac{-2}{2} = (-1)$

$$\begin{aligned} y &= 2(-1-1)(-1+3) \\ &= 2(-2)(2) \\ &= -4(2) \\ &= (-8) \rightarrow (-1, -8) \end{aligned}$$

Use the information provided to write the VERTEX FORM equation of each parabola.

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

8)



VERTEX: $(-5, -6)$

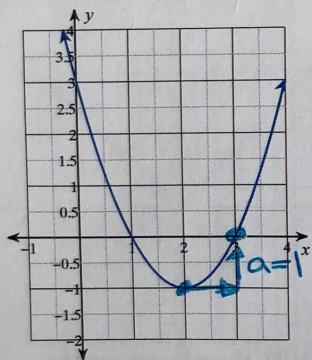
$$y = a(x + 5)^2 - 6$$

$$y = 2(x + 5)^2 - 6$$

Use the information provided to write the INTERCEPT FORM equation of each parabola.

$$y = a(x - p)(x - q)$$

9)



X-INTERCEPTS AT $x=1$ AND $x=3$

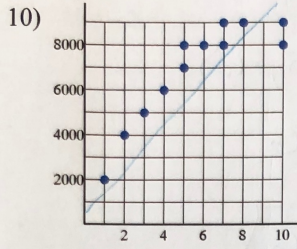
$$y = a(x - 1)(x - 3)$$

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

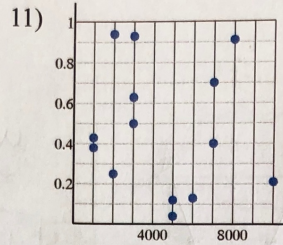
OR

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

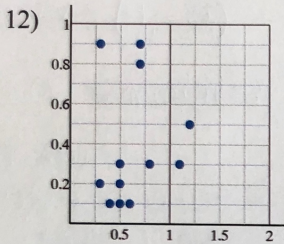
State if there appears to be a positive correlation, negative correlation, or no correlation.



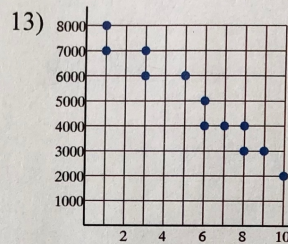
POSITIVE
CORRELATION



NO CORRELATION

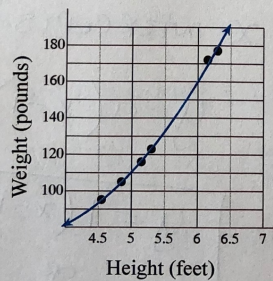


NO CORRELATION



NEGATIVE CORRELATION

- 14) The height and weight of adults can be related by the equation $y = 10.3x^2 - 63.3x + 170$ where x is height in feet and y is weight in pounds.



- a) Using this model, what would be the weight of someone who is 5.7 ft tall? Round your answer to the nearest tenth.

$$y = 10.3(5.7)^2 - 63.3(5.7) + 170$$

$$y = 143.837$$

- b) According to the model, what would be the weight of someone who is 6 ft tall? Round your answer to the nearest tenth.

$$y = 10.3(6)^2 - 63.3(6) + 170$$

$$y = 161$$