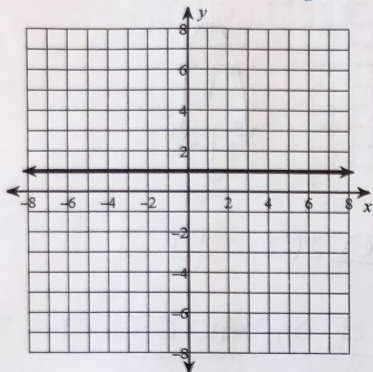


Unit 1 Review

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

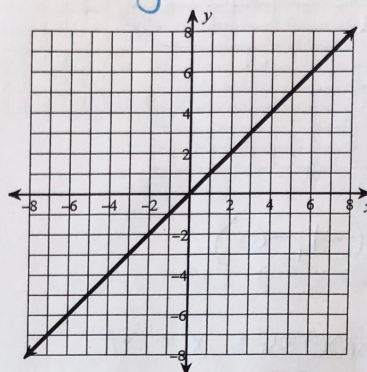
1) name: CONSTANT FUNCTION

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



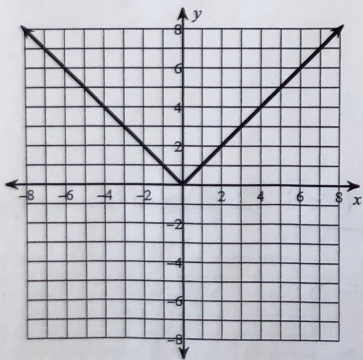
2) name: LINEAR FUNCTION

equation: $y=x$



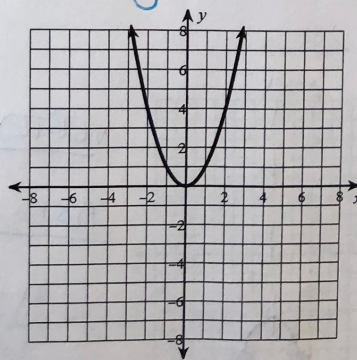
3) name: ABSOLUTE VALUE FUNCTION

equation: $y=|x|$



4) name: QUADRATIC FUNCTION

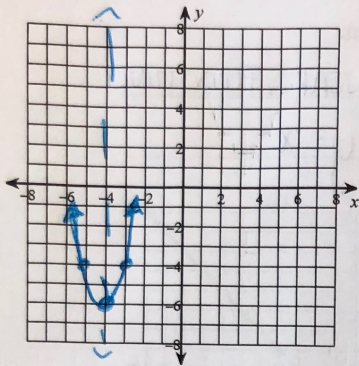
equation: $y=x^2$



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

VERTEX FORM

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

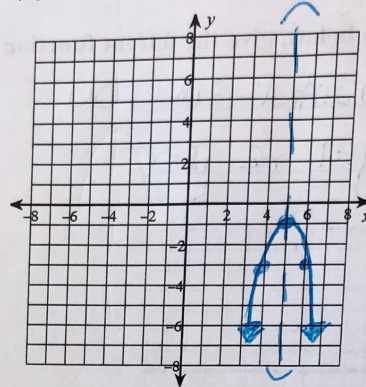


VERTEX: $(-4, -6)$

AXIS OF SYMMETRY: $x = -4$

$$\begin{aligned} y &= 2(-3 + 4)^2 - 6 \\ y &= 2(1)^2 - 6 \\ &= 2(1) - 6 \\ &= 2 - 6 \\ &= -4 \rightarrow (-3, -4) \end{aligned}$$

6) $f(x) = -2(x - 5)^2 - 1$

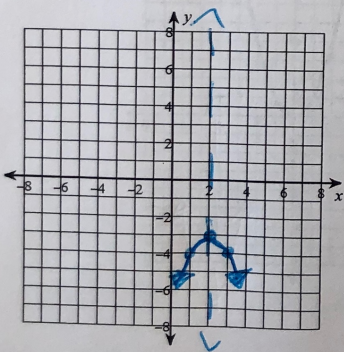


VERTEX: $(5, -1)$

AXIS OF SYMMETRY: $x = 5$

$$\begin{aligned} y &= -2(6 - 5)^2 - 1 \\ &= -2(1)^2 - 1 \\ &= -2(1) - 1 \\ &= -2 - 1 \\ &= -3 \rightarrow (6, -3) \end{aligned}$$

7) $f(x) = -(x - 2)^2 - 3$

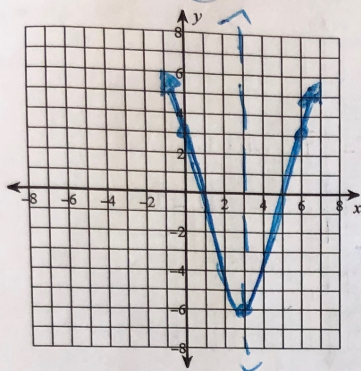


VERTEX: $(2, -3)$

AXIS OF SYMMETRY: $x = 2$

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

8) $f(x) = x^2 - 6x + 3$ y -INT



VERTEX: $x = \frac{-b}{2a} = \frac{-(-6)}{2(1)} = \frac{6}{2} = 3$

$y = (3)^2 - 6(3) + 3$
 $= 9 - 18 + 3$

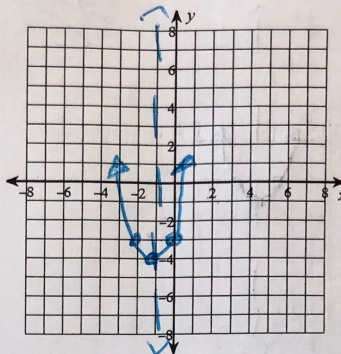
$= -6 \rightarrow \boxed{(3, -6)}$

AXIS OF SYMMETRY: $x = 3$

* y -INT AT $y = 3$

9) $f(x) = x^2 + 2x - 3$ y -INT

STANDARD FORM



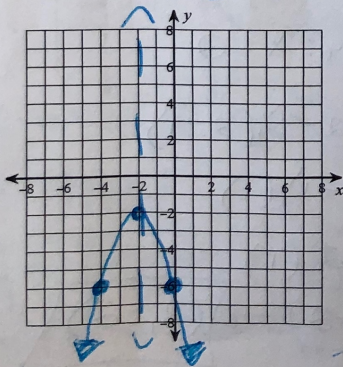
VERTEX: $x = \frac{-b}{2a} = \frac{-2}{2(1)} = -1$

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

$= -4 \rightarrow \boxed{(-1, -4)}$

y -INT: -3

10) $f(x) = -x^2 - 4x - 6$ y -INT



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

$y = -(-2)^2 - 4(-2) - 6$

$= -(4) + 8 - 6$

$= -4 + 8 - 6$

$= -2 \rightarrow \boxed{(-2, -2)}$

y -INT: -6