

Identify the important information and then graph the function.

1. $f(x) = -|x - 5| + 8$

Absolute Value
 $f(x) = |x|$

Parent Function: $f(x) = |x|$

Transformations: reflected through x-axis, right 5, up 8

Domain: $(-\infty, \infty)$

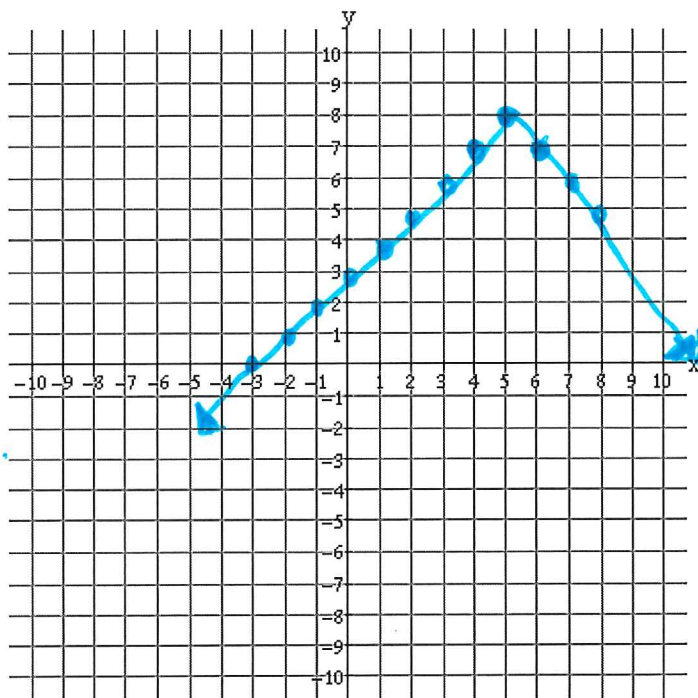
Range: $(-\infty, 8]$

Relative Extrema: $(5, 8)$ Max, no min.

Increasing Interval(s): $(-\infty, 5)$

Decreasing Interval(s): $(5, \infty)$

End Behavior: $x \rightarrow \infty \quad f(x) \rightarrow -\infty$
 $x \rightarrow -\infty \quad f(x) \rightarrow -\infty$



2. $f(x) = 4|x + 2| - 6$ Absolute Value

Parent Function: $f(x) = |x|$

Transformations: stretched by 4 left 2, down 6

Domain: $(-\infty, \infty)$

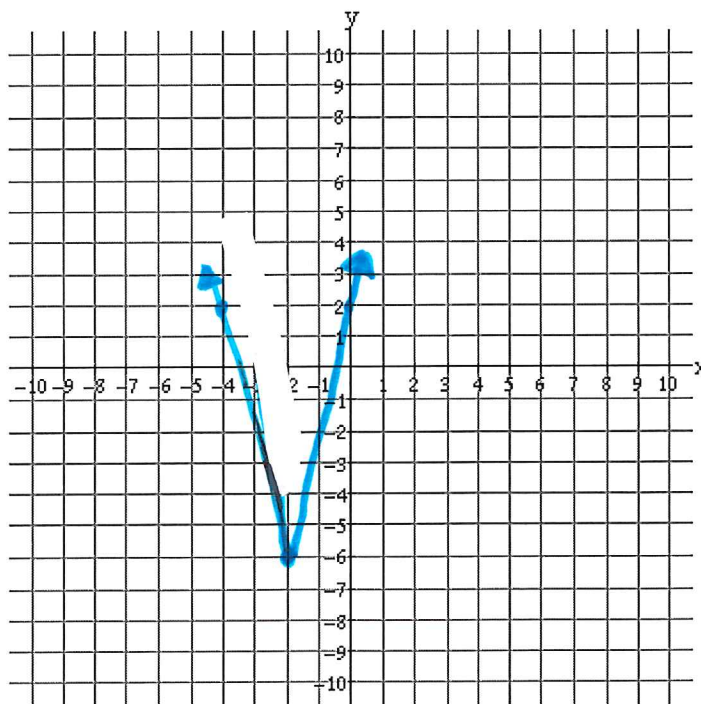
Range: $[-6, \infty)$

Relative Extrema: Min $(-2, -6)$ no max

Increasing Interval(s): $(-2, \infty)$

Decreasing Interval(s): $(-\infty, -2)$

End Behavior: $x \rightarrow \infty \quad f(x) \rightarrow \infty$
 $x \rightarrow -\infty \quad f(x) \rightarrow \infty$



3. $f(x) = -\frac{1}{2}x - 4$

Linear

Parent Function: $f(x) = x$

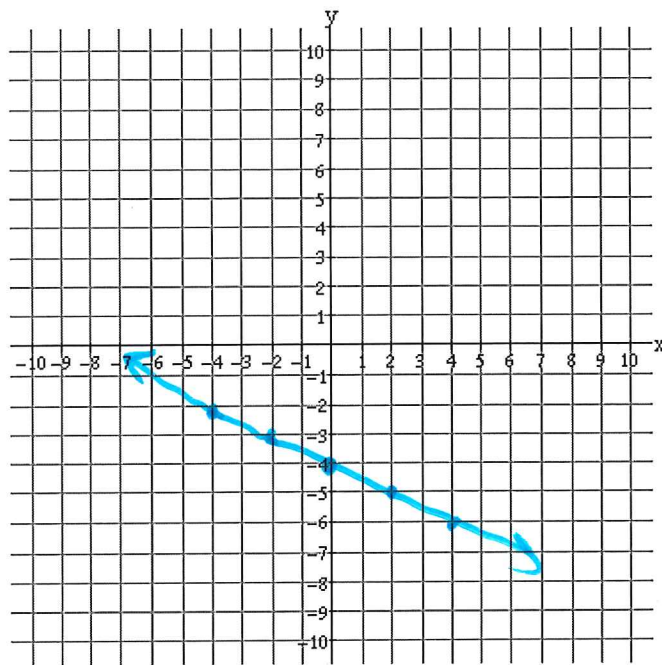
Slope: $-\frac{1}{2}$

y-intercept: -4

Domain: $(-\infty, \infty)$

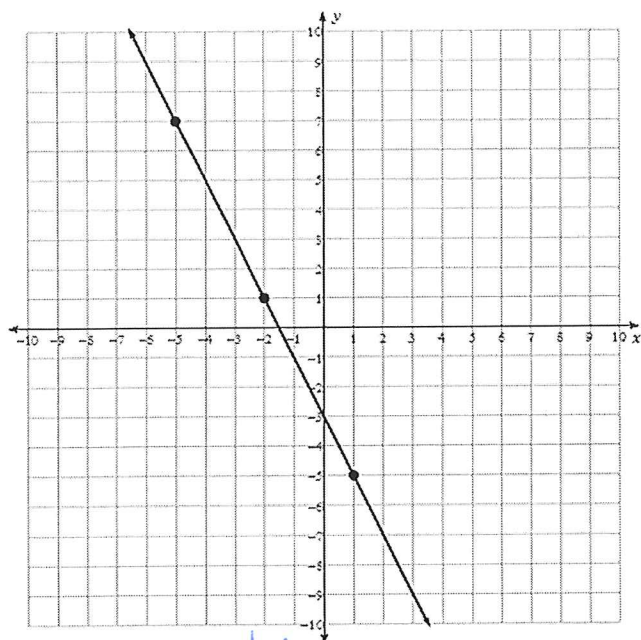
Range: $(-\infty, \infty)$

End Behavior: $x \rightarrow \infty \quad f(x) \rightarrow -\infty$
 $x \rightarrow -\infty \quad f(x) \rightarrow \infty$



Name the parent function of each graph and then write the equation.

4.

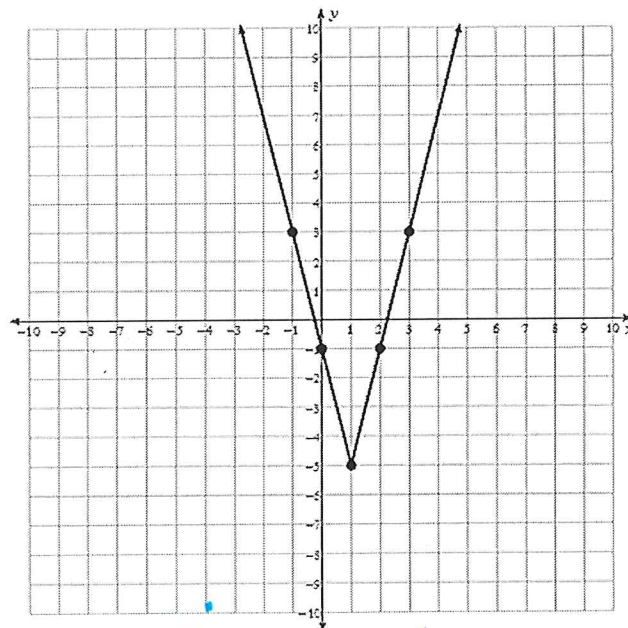


Linear
 $f(x) = x$

Parent Function: $f(x) = x$

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

5.



Absolute Value
 $f(x) = |x|$

Parent Function: $f(x) = |x|$

$g(x) = 4|x - 1| - 5$