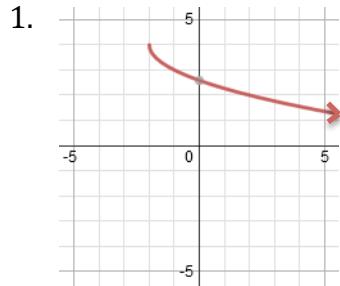


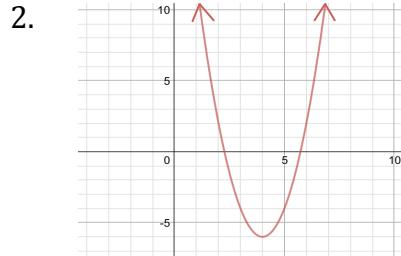
## Algebra 2 Functions Unit Review 2

SHOW ALL WORK on the worksheet

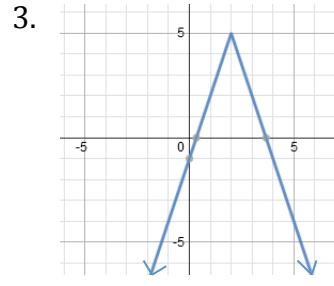
Write the equation of each function



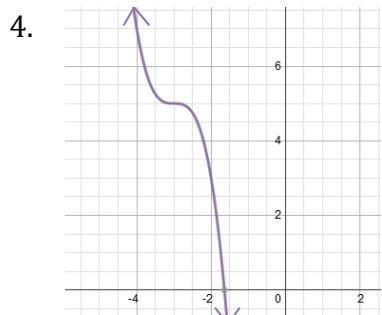
$$f(x) = -\sqrt{x+2} + 4$$



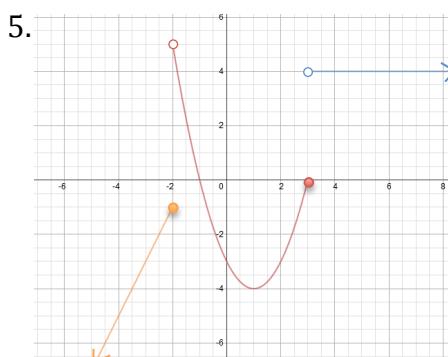
$$h(x) = 2(x-4)^2 - 6$$



$$y = -3|x-2| + 5$$



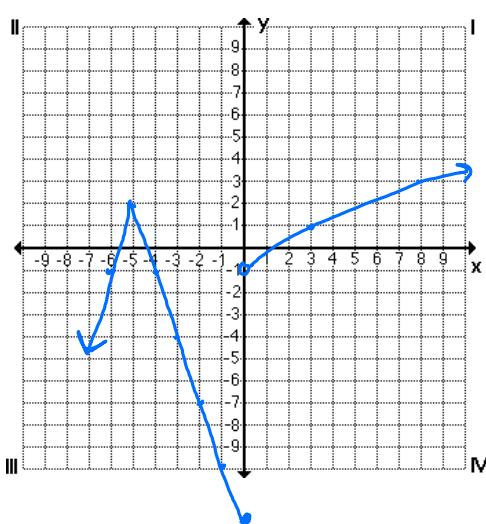
$$g(x) = -\frac{1}{2}(x+3)^3 + 5$$



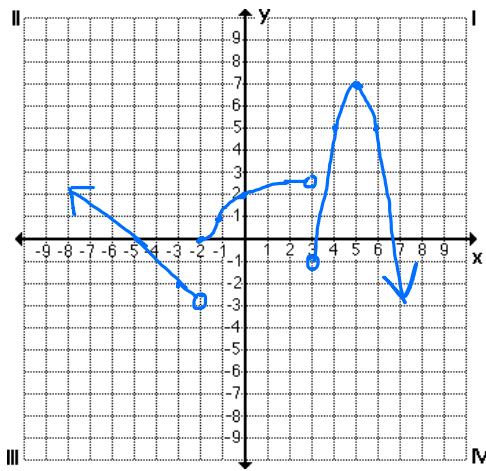
$$f(x) = \begin{cases} 2x + 3 & \text{if } x \leq -2 \\ (x-1)^2 - 4 & \text{if } -2 < x \leq 3 \\ 4 & \text{if } x > 3 \end{cases}$$

Graph each function

6.  $g(x) = \begin{cases} 2\sqrt{x+1} - 3 & \text{if } x > 0 \\ -3|x+5| + 2 & \text{if } x \leq 0 \end{cases}$



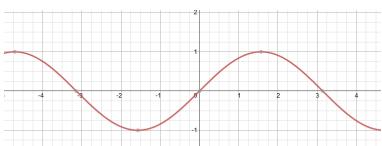
7.  $f(x) = \begin{cases} -\frac{2}{3}x - 4 & \text{if } x < -2 \\ \sqrt[3]{x-1} + 1 & \text{if } -2 \leq x < 3 \\ -2(x-5)^2 + 7 & \text{if } x > 3 \end{cases}$



## Algebra 2 Functions Unit Review 2

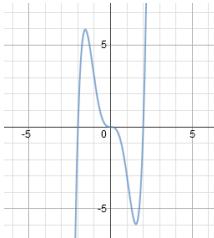
Determine if each function is even, odd, or neither

8.



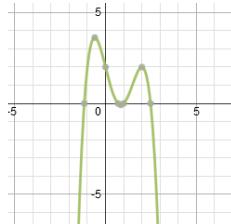
Odd

9.



Odd

10.



Neither

11.  $h(x) = 2x - 4$

$$h(-x) = 2(-x) - 4 \\ = -2x - 4$$

Neither

12.  $f(x) = -x^4 + 2x^2 - 3$

$$f(-x) = -(-x)^4 + 2(-x)^2 - 3 \\ = -x^4 + 2x^2 - 3$$

Even

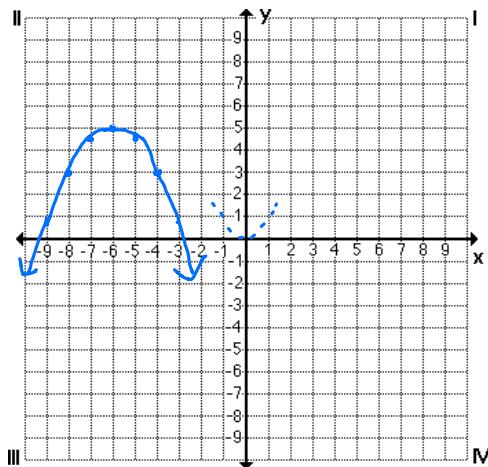
13.  $t(x) = \frac{5}{x}$

$$t(-x) = \frac{5}{-x} \\ = -\frac{5}{x}$$

Odd

Graph each function. Identify the key characteristics.

14.  $f(x) = -\frac{1}{2}(x + 6)^2 + 5$



Domain:  $\mathbb{R}$

Range:  $(-\infty, 5]$

x-int:  $(-9, 0), (-2, 0)$

y-int:  $(0, -13)$

Increase:  $(-\infty, -6)$

Decrease:  $(-6, \infty)$

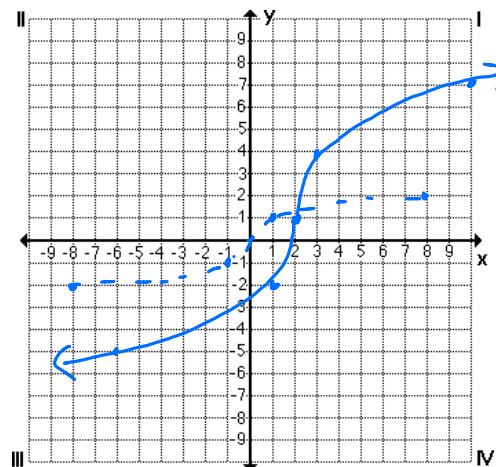
$\frac{1}{2}(6)^2 + 5$   
 $= -18 + 5$

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

Symmetry:  $x = -6$

Even/Odd: Neither

15.  $g(x) = 3\sqrt[3]{x - 2} + 1$



Domain:  $\mathbb{R}$

Range:  $\mathbb{R}$

x-int:  $(1.8, 0)$

y-int:  $(0, 3\sqrt[3]{-2} + 1)$

Increase:  $\mathbb{R}$

Decrease: None

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

Symmetry: point  $(2, 1)$

Even/Odd: None