

LOF Quiz Review

Identify the parent function. Then, describe the transformations from the parent function.

<p>1) <math>f(x) = -2 x  + 4</math>                  Abs. value                  up 4                  reflect w/ x-axis                  expand vert. by factor of 2</p>	<p>2) <math>f(x) = \frac{1}{3}(x+5)^2 - 1</math>                  Quadratic                  left 5, down 1                  compress vert. by factor of 3</p>	<p>3) <math>f(x) = \sqrt{-5x}</math>                  square root                  reflect w/ y-axis                  compress horiz. by factor of 5</p>	<p>4) <math>f(x) = 2 + 3\lceil x + 6 \rceil</math>                  greatest integer                  left 6, up 2                  expand vert. by factor of 3</p>
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Describe the transformations necessary to transform the graph of  $f(x)$  into that of  $g(x)$ .

<p><math>f(x) =  x </math>                  5) <math>g(x) = -\left \frac{1}{2}(x-5)\right  + 2</math>                  right 5; up 2                  reflect w/ x-axis                  expand horiz by factor of 2</p>	<p>6) <math>f(x) = \sqrt[3]{x}</math>  <math>g(x) = 2\sqrt[3]{-x} - 3</math>                  down 3                  reflect w/ y-axis                  expand vert. by factor of 2</p>
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Transform the given function  $f(x)$  as described and write the resulting function as  $g(x)$ .

<p>7) <math>f(x) = \frac{1}{x}</math>                  translated down 3; reflected with x-axis  <math>g(x) = \frac{-1}{x} - 3</math></p>	<p>8) <math>f(x) = x^3</math>                  translated right 4; down 2; compress vertically by factor of 5  <math>g(x) = \frac{1}{5}(x-4)^3 - 2</math></p>
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Sketch. State the domain and range in set notation for 9, 11, 13, 15 and interval notation for 10, 12, 14, and 16.

<p>9) <math>f(x) =  x-5  - 1</math>                  Key pt (5, -1)                  absolute value  <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>x</td><td>y</td></tr> <tr><td>4</td><td>0</td></tr> <tr><td>* 5</td><td>-1</td></tr> <tr><td>6</td><td>0</td></tr> </table></p>	x	y	4	0	* 5	-1	6	0	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> <p>D: <math>\{x   x \in \mathbb{R}\}</math>                      R: <math>\{y   y \geq -1\}</math></p> </div> <p>D: <math>(-\infty, \infty)</math>                      R: <math>[-1, \infty)</math></p>	
x	y									
4	0									
* 5	-1									
6	0									
<p>10) <math>f(x) = -\sqrt{x} + 4</math>                  Key pt. (-4, 0)                  square root  <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>x</td><td>y</td></tr> <tr><td>-4</td><td>0</td></tr> <tr><td>-3</td><td>-1</td></tr> <tr><td>0</td><td>-2</td></tr> </table></p>	x	y	-4	0	-3	-1	0	-2	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> <p>D: <math>[-4, \infty)</math>                      R: <math>(-\infty, 0]</math></p> </div> <p>D: <math>\{x   x \geq -4\}</math>                      R: <math>\{y   y \leq 0\}</math></p>	
x	y									
-4	0									
-3	-1									
0	-2									

Quadratic

11)  $f(x) = \frac{1}{2}(x+1)^2 - 3$

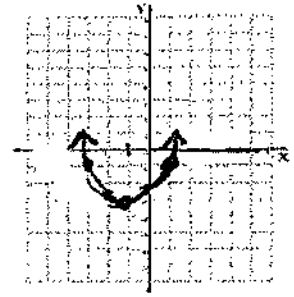
Key pt  $(-1, -3)$

X	Y
-3	-1
-1	-3*
1	-1

$D: \{x | x \in \mathbb{R}\}$   
 $R: \{y | y \geq -3\}$

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

$R: [-3, \infty)$



12)  $f(x) = -2|x| + 3$

Key pt  $(0, 3)$

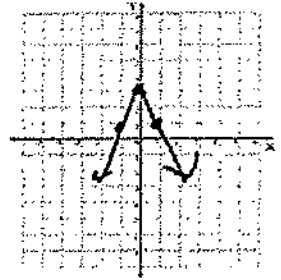
absolute value

X	Y
-1	1
0	3*
1	1

$D: (-\infty, \infty)$   
 $R: (-\infty, 3]$

$D: \{x | x \in \mathbb{R}\}$

$R: \{y | y \leq 3\}$



13)  $f(x) = -\sqrt[3]{x+2} - 1$

Key pt  $(-2, -1)$

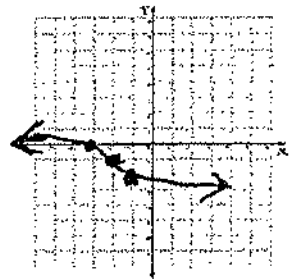
Cube root

X	Y
-3	0
-2	-1*
-1	-3

$D: \{x | x \in \mathbb{R}\}$   
 $R: \{y | y \in \mathbb{R}\}$

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

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



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

Reciprocal

VA:  $x = -2$

HA:  $y = 1$

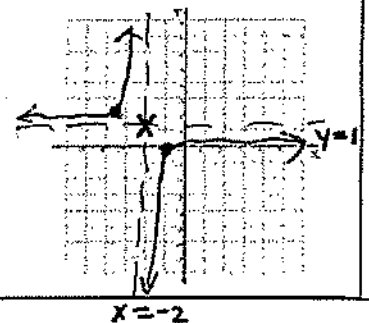
$(h, k)$   
 $(-2, 1)$

X	Y
-3	2
-1	0

$D: (-\infty, -2) \cup (-2, \infty)$   
 $R: (-\infty, 1) \cup (1, \infty)$

$D: \{x | x \neq -2\}$

$R: \{y | y \neq 1\}$



15)  $f(x) = -\sqrt{-(x-3)}$

Square root

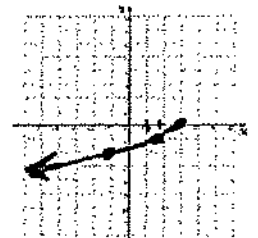
Key pt:  $(3, 0)$

X	Y
3	0*
2	-1
1	-2

$D: \{x | x \leq 3\}$   
 $R: \{y | y \leq 0\}$

$D: (-\infty, 3]$

$R: (-\infty, 0]$



16)  $f(x) = \frac{1}{x} + 2$

Reciprocal

VA:  $x = 0$

HA:  $y = 2$

$(h, k)$   
 $(0, 2)$

X	Y
1	3
-1	1

$D: (-\infty, 0) \cup (0, \infty)$   
 $R: (-\infty, 2) \cup (2, \infty)$

$D: \{x | x \neq 0\}$

$R: \{y | y \neq 2\}$

