LOF Quiz Review

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

1) $f(x) = -2|x| + 4$

Abs. value
up 4
reflect w/ x-axis
expand vert. by factor of 2

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

Quadratic
left 5, down 1
Compress vert. by factor of 3

3) $f(x) = \sqrt{-5x}$

square root
reflect w/ y-axis
compress horiz. by factor of 5

4) $f(x) = 2 + 3[\![x+6]\!]$

greatest integer
left 6, up 2
expand vert. by factor of 3

Describe the transformations necessary to transform the graph of f(x) into that of g(x).

5) $f(x) = |x|$
$g(x) = -\left|\frac{1}{2}(x-5)\right| + 2$

right 5 ; up 2
reflect w/ x-axis
expand horiz by factor of 2

6) $f(x) = \sqrt[3]{x}$
$g(x) = 2\sqrt[3]{-x} - 3$

down 3
reflect w/ y-axis
expand vert. by factor of 2

Transform the given function f(x) as described and write the resulting function as g(x).

7) $f(x) = \frac{1}{x}$
translated down 3; reflected with x-axis

$g(x) = \frac{-1}{x} - 3$

8) $f(x) = x^3$
translated right 4; down 2; compress vertically by factor of 5

$g(x) = \frac{1}{5}(x-4)^3 - 2$

Sketch. State the domain and range in set notation for 9, 11, 13, 15 and interval notation for 10, 12, 14, and 16.

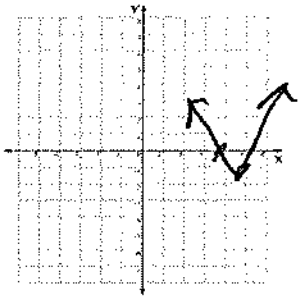
9) $f(x) = |x-5| - 1$

Key pt $(5,-1)$

x	y
4	0
5	-1
6	0

D: $\{x \mid x \in R\}$
R: $\{y \mid y \geq -1\}$

D: $(-\infty, \infty)$
R: $[-1, \infty)$



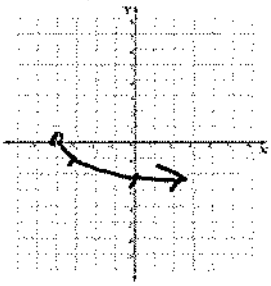
10) $f(x) = -\sqrt{x+4}$

Key pt. $(-4,0)$

x	y
-4	0
-3	-1
0	-2

D: $[-4, \infty)$
R: $(-\infty, 0]$

D: $\{x \mid x \geq -4\}$
R: $\{y \mid y \leq 0\}$



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

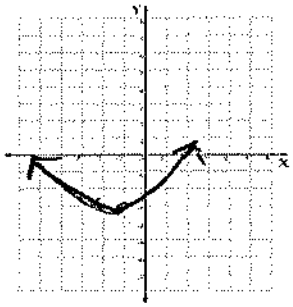
Key pt $(-1,-3)$

x	y
-2	$-2\frac{1}{2}$
-1	-3
0	$-2\frac{1}{2}$

$\boxed{\begin{array}{l} D: \{x \mid x \in R\} \\ R: \{y \mid y \geq -3\} \end{array}}$

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

$R: [-3, \infty)$



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

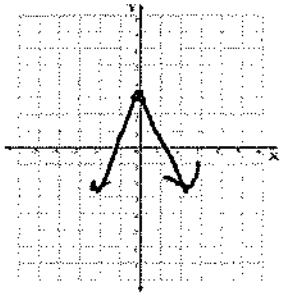
Key pt $(0,3)$

x	y
-1	1
0	3
1	1

$\boxed{\begin{array}{l} D: (-\infty, \infty) \\ R: (-\infty, 3] \end{array}}$

$D: \{x \mid x \in R\}$

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



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

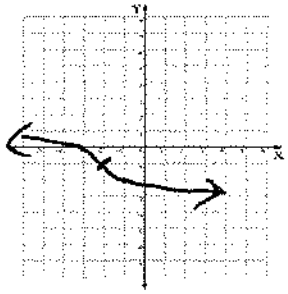
Key pt $(-2,-1)$

x	y
-3	0
-2	-1
-1	-3

$\boxed{\begin{array}{l} D: \{x \mid x \in R\} \\ R: \{y \mid y \in R\} \end{array}}$

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

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



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

VA: $x = -2$

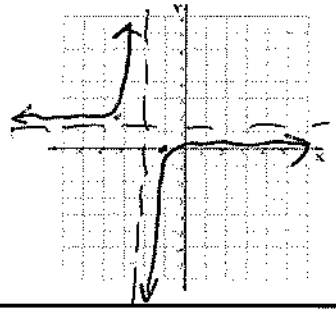
HA: $y = 1$

x	y
-3	2
-1	0

$\boxed{\begin{array}{l} D: (-\infty, -2) \cup (-2, \infty) \\ R: (-\infty, 1) \cup (1, \infty) \end{array}}$

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

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



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

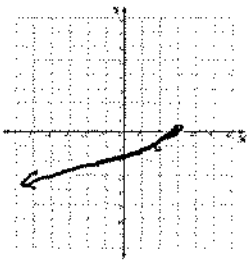
Key pt: $(3,0)$

x	y
3	0
2	-1
-1	-2

$\boxed{\begin{array}{l} D: \{x \mid x \leq 3\} \\ R: \{y \mid y \leq 0\} \end{array}}$

$D: (-\infty, 3]$

$R: (-\infty, 0]$



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

VA: $x = 0$

HA: $y = 2$

x	y
1	3
-1	1

$\boxed{\begin{array}{l} D: (-\infty, 0) \cup (0, \infty) \\ R: (-\infty, 2) \cup (2, \infty) \end{array}}$

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

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