

## Test Review Worksheet Part 1

1.  $\frac{-x^3y^{12}}{8}$
2.  $\frac{10}{3x^{17}}$
3.  $\frac{9}{x^8}$
4. 32
5. -1
6.  $2a^2$
7. 25
8.  $36-16\sqrt{5}$
9.  $6\sqrt{2}$
10.  $90x^2y^2\sqrt{2y}$
11.  $6\sqrt{3}$
12.  $2x^4(30x)^{1/3}$
13.  $a^2b^3$
14.  $-2s^3t^2$
15.  $4y^2$
16.  $\frac{7-7\sqrt{3}}{-2}$
17.  $\frac{7-3\sqrt{5}}{2}$
18.  $(-\infty, -3)(-3, 5)(5, \infty)$
19.  $[4, \infty)$
20.  $(-\infty, \infty)$

## Test Review Worksheet Part 2

1.  $\frac{1}{8x^6}$
2.  $256a^{12}$
3.  $7/4$
4.  $5/6$
5.  $-1/7$
6.  $-2$
7.  $12$
8.  $-5/7$
9.  $15$
10.  $120$
11.  $\pm\sqrt{x-2} = y^{-1}$  *no*
12.  $\pm\sqrt{x-3} = y^{-1}$  *no*
13.  $\frac{x+1}{2} = y^{-1}$  *yes*
14.  $f^{-1}(x) = -5x + 10$   
 $f(x)D: (-\infty, \infty)R: (-\infty, \infty)$   
 $f^{-1}(x)D: (-\infty, \infty)R: (-\infty, \infty)$
15.  $f^{-1}(x) = \pm\sqrt{x-2}$   
 $f(x)D: (-\infty, \infty)R: [-2, \infty)$   
 $f^{-1}(x)D: [-2, \infty)R: (-\infty, \infty)$
16.  $f^{-1}(x) = x^2 + 1$   
 $f(x)D: [1, \infty)R: [0, \infty)$   
 $f^{-1}(x)D: [0, \infty)R: [1, \infty)$
17.  $2x^2 + 3x - 3$
18.  $18x^2 + 48x - 33$
19.  $9x - 16$
20.  $\frac{-2x^2 - 1}{3x - 4}; x \neq 4/3$
21.  $-1$   
 $D: (-\infty, 4/3)(4/3, \infty)$
22.  $-1/2$

Let  $f(x) = 3x^2 - 2x$  and  $g(x) = x - 6$ . Find each value.

7.  $(f-g)(2)$       8.  $\left(\frac{f}{g}\right)(-1)$       9.  $(g \circ f)(3)$       10.  $(f \circ g)(0)$

Find the inverse of each function algebraically. Is the inverse a function?

11.  $y = x^2 + 2$       12.  $y = (x+3)^2$       13.  $y = 2x - 1$

For each function  $f$ , find  $f^{-1}$  algebraically, find the domain and range of  $f$  and  $f^{-1}$ . Write the domain and range in interval notation. Determine whether  $f^{-1}$  is a function.

14.  $f(x) = -\frac{1}{5}x + 2$       15.  $f(x) = x^2 - 2$       16.  $f(x) = \sqrt{x-1}$

Let  $f(x) = -2x^2 - 1$  and  $g(x) = 3x - 4$ . Find each combination.

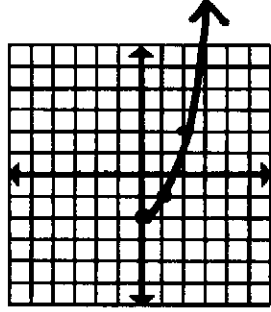
17.  $(g-f)(x)$       18.  $(f \circ g)(x)$       19.  $(g \circ g)(x)$       20.  $\left(\frac{f}{g}\right)(x)$ , what is the domain of  $\left(\frac{f}{g}\right)(x)$

Let  $f(x) = 2x + 5$ . Find each value.

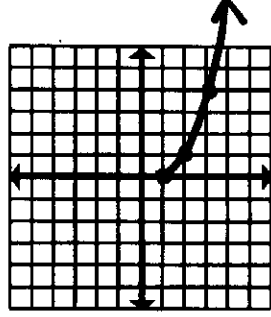
21.  $(f^{-1} \circ f)(-1)$       22.  $f(f^{-1}\left(-\frac{1}{2}\right))$

Graph each function.

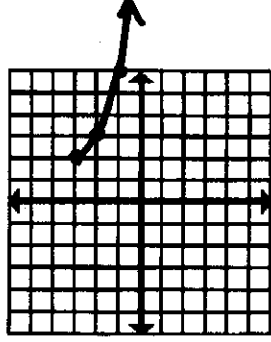
23.  $y = -\sqrt{x+2}$



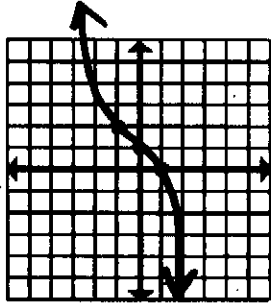
24.  $y = -\sqrt{x} - 1$



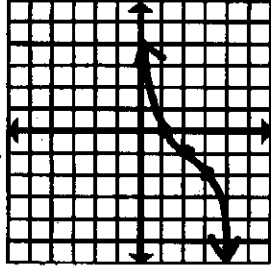
25.  $y = -\sqrt{x-2} + 3$



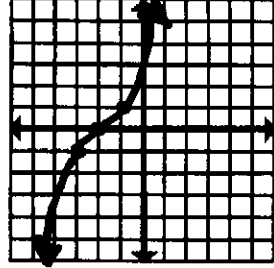
26.  $y = \sqrt[3]{x-1}$



27.  $y = \sqrt[3]{x+1} - 2$



28.  $y = -\sqrt[3]{x+2}$



State the domain using interval notation.

29.  $f(x) = \sqrt{2x+10}$   
 $[-5, \infty)$

30.  $f(x) = \frac{5x^2 - 11}{10x^2 - 19x + 6}$

$(-\infty, \frac{2}{5}) \cup (\frac{3}{2}, \infty)$

31.  $f(x) = x^2 - 10x + 25$

$(-\infty, \infty)$