

## SBM 3 Review C

Date \_\_\_\_\_ Period \_\_\_\_\_

**Identify the domain and range of each. List the transformations from the parent function.**

1)  $y = -3\sqrt{x-4}$

2)  $y = \sqrt[3]{4x+4} + 2$

3)  $y = \sqrt{-x-3}$

4)  $y = \frac{2}{5}\sqrt[3]{x} - 9$

**Solve each equation. Remember to check for extraneous solutions.**

5)  $\sqrt[3]{2x+14} = 4$

6)  $5\sqrt[3]{-6-n} = 2\sqrt[3]{3n+26}$

7)  $\sqrt{72-m} = m$

8)  $b+4 = \sqrt{6b+15}$

**Evaluate each at  $f(-5)$ ,  $f(-1)$ ,  $f(0)$ , and  $f(1)$**

$$9) f(x) = \begin{cases} (x+2)^4, & x \leq -1 \\ 4-x^3, & x > -1 \end{cases}$$

$$10) h(x) = \begin{cases} \sqrt{-x}, & x < -4 \\ x-1, & -4 \leq x \leq 0 \\ 4-x^2, & x > 0 \end{cases}$$

**Find the inverse of each function.**

$$11) f(x) = -2x - 2$$

$$12) g(x) = \sqrt[3]{x-2} + 1$$

**Perform the indicated operation.**

$$13) \begin{aligned} f(t) &= 4t + 3 \\ g(t) &= -t^2 + 2 \\ \text{Find } (f \cdot 2g)(t) \end{aligned}$$

$$14) \begin{aligned} g(x) &= x^2 - 5 \\ f(x) &= 3x + 5 \\ \text{Find } (g - 5f)(x) \end{aligned}$$

15)  $g(t) = 2t^2 + t - 3$   
 $f(t) = 4t^2 - 5t + 1$   
Find  $\left(\frac{g}{f}\right)(t)$

16)  $f(n) = 4n - 2$   
 $g(n) = n + 3$   
Find  $f(g(n))$

17)  $f(t) = 2t$   
 $g(t) = -4t - 4$   
Find  $(f \circ g)(-9)$

18)  $f(a) = a + 1$   
 $g(a) = 2a$   
Find  $f(g(10))$

19)  $h(n) = 2n^2 + 2$   
 $g(n) = n - 1$   
Find  $h(g(n))$

20)  $f(x) = 2x - 1$   
 $g(x) = x^3 - 3x$   
Find  $f(g(x))$