Algebra/Trigonometry Section 2.5b Name:_____

Please do all your work on a separate piece of paper. Please show all setup and work!

Word problem

1. A store is offering a 15% discount on all items. Write a linear equation giving the sale price S for an item with a list price of L.

Find the domain of the function.

2. $h(x) = \frac{10}{x^2-2x}$

Find the zeros of the function by factoring.

3. $f(x) = 9x^4 - 25x^2$

Describe the transformations that occur in the function. Then sketch its graph.

4. $f(x) = 2 - (x+5)^2$
5. $f(x) = (x-8)^2$
6. $f(x) = \sqrt{x-9}$

Write an equation for the function that is described by the given characteristics.

7. The shape of $(x) = x^2$, but moved 3 units to the left, 7 units up, and reflected in the x-axis.
8. The shape of $f(x) = |x|$, but moved 10 units up and reflected in the x-axis.
9. The shape of $f(x) = x^3$, but moved 6 units to the left, 6 units down and reflected in the y-axis.

Find $(a)(f+g)(x),\ (b)(f-g)(x),\ (c)(fg)(x),\ (d)\ \left(\frac{f}{g}\right)(x)$

10. $f(x) = 2x - 5, \quad g(x) = 2 - x$
11. $f(x) = \frac{1}{x},\ g(x) = \frac{1}{x^2}$

Evaluate the indicated function for $f(x) = x^2 + 1$ and $g(x) = x - 4$

12. $(f-g)(0)$
13. $\left(\frac{f}{g}\right)(5)$
14. $(f+g)(t-2)$

Find $(a)\ f \circ g,\ (b)\ g \circ f\ ,\ (c)\ f \circ f\ .$

15. $f(x) = \sqrt[3]{x-1}, \quad g(x) = x^3 + 1$

Find$(a)\ f \circ g,\ (b)\ g \circ f\ ,$ Find the domain of each function and each composite function (A total of 4 domains)

16. $f(x) = \sqrt[3]{x-5}\ , \quad g(x) = x^3 + 1$
17. $f(x) = x^2 + 1,\ g(x) = \sqrt{x}$