

Honors Algebra II

Notes Section 3.3

Perform Function Operations and Compositions

EXAMPLE 1 Find the following.

$$f(x) = 4x^{1/2} \quad \text{and} \quad g(x) = -9x^{1/2}$$

- a) $f(x) + g(x) =$ _____
- b) $f(x) - g(x) =$ _____
- c) Domains for example a and b _____

EXAMPLE 2 Find the following.

$$f(x) = 6x \quad \text{and} \quad g(x) = x^{3/4}$$

- a) $f(x) \cdot g(x)$ _____
- b) $\frac{f(x)}{g(x)}$ _____
- c) Domains of example a and b _____

Composition of Functions: _____

EXAMPLE 3 What is the value of $g(f(3))$?

$$f(x) = 2x - 7 \quad \text{and} \quad g(x) = x^2 + 4$$

EXAMPLE 4 Find the following.

$$f(x) = 4x^{-1} \quad \text{and} \quad g(x) = 5x - 2$$

- a) $f(g(x)) =$ _____
- b) $g(f(x)) =$ _____
- c) $f(f(x)) =$ _____
- d) Domain for a: _____ b: _____ c: _____

EXAMPLE 5 Find the following.

$$f(x) = 6x^2 \quad \text{and} \quad g(x) = 4x + 5$$

- a) $f(g(x)) =$ _____
- b) $g(f(x)) =$ _____
- c) $g(g(x)) =$ _____
- d) Domain for a: _____ b: _____ c: _____

EXAMPLE 6 You have a \$10 gift certificate to a paint store. The store is offering 15% off your entire purchase. You decide to purchase a \$30 can of paint and \$25 worth of supplies.

Is it better to apply the 15% discount before you give them the \$10 gift certificate or vice versa?

Step 1 Find the Total amount of purchase _____

Step 2 Write functions: \$10 Gift Certificate _____
15% Discount _____

Step 3 Find $g(f(x))$ & $f(g(x))$ _____

Step 4 Evaluate each at \$55 _____
