Homework 4.1: Combining Functions Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Math 3

**Directions:** Find the equation of the line f(x) and g(x) in the form y=mx + b by determining the slope and the y-intercept. Then, combine the functions in the following ways.



1. Equation of f(x) =
2. Equation of g(x) =
3. f(x) + g(x) =
4. f(x) – g(x) =
5. f(x)•g(x) =

**Directions:** Use the given functions to solve questions 6-12.

*f(x)* = x – 3

*g(x)* = x + 2

*h(x)* = –x + 1

*m(x)* = x2 + 3x + 2

*n(x)* = 2x3 –x2 + 2x + 1

*p(x)* = 2x + 1

1. *f(x) + g(x)*
2. *f(x) – h(x)*
3. *f(x) + p(x)*
4. *g(x) + h(x)*
5. *m(x) – g(x)*
6. *n(x) + m(x)*

***Directions:*** Determine if the statement is SOMETIMES, ALWAYS, or NEVER true.

1. The sum of two linear functions is another linear function. 12. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. The sum of a linear and a quadratic is a cubic function. 13. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. The sum of the cubic and a quadratic function is a cubic function. 14. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Homework 4.2: Dividing Polynomials Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Math 3

Divide each of the polynomials using either long or synthetic division.

1. (4x2 – 9) ÷ (2x + 3)

1. 2. (x2 – 4) ÷ (x + 4)

3. (2x2 + 5x – 3) ÷ (x + 3)

4. (2x2 + 5x – 3) ÷ (x – 3)

7. (11x + 20x2 + 12x3 + 2) ÷ (3x + 2)

8. (12x3 + 2 + 11x + 20x2) ÷ (2x + 1)

9.  

10. 

11. 

12. 