AGS 3 Name: _____ Period: _____ Date: _____

Unit 3 Test Review

Simplify by doing the indicated operation.

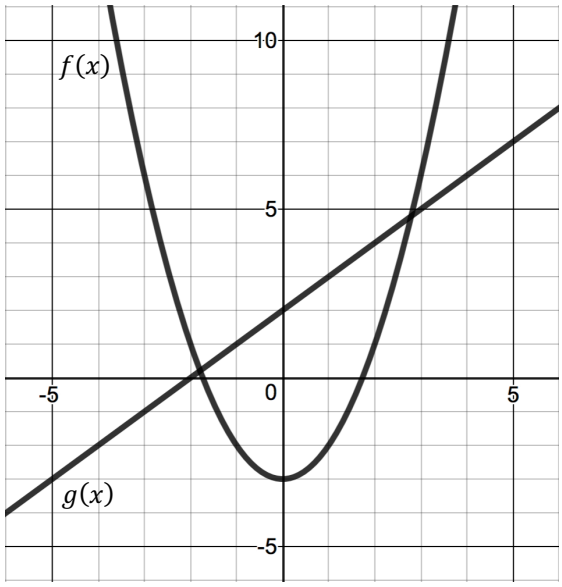
1. $(9x^2 + x - 2) + (-5x^2 - 2x + 8)$

2. $(15x^3 + 8x) + (2x^2 - 6x + 9)$

3. $(4x^2 + 3) - (x^3 - 5x + 2)$

4. $(6x^3 + 5x^2 - 10x + 1) - (-2x^3 - 3x^2 + 3x)$

5. $f(x) + g(x)$




6. $(x - 3)(x^2 + 2x - 8)$

7. $(2x - 7)^2$

8. $\left(x - 2\sqrt{5}\right)\left(x + 2\sqrt{5}\right)$

9. $(x^3 + x + 30) \div (x - 3)$

10. $(5x^4 + 2x^3 - 9x + 12) \div (x^2 - 3x + 4)$

11. $(x^3 - 3x^2 + 8x - 5) \div (x - 1)$

Find all the roots of the given polynomial, then write the equation in factored form.

12. $f(x) = x^3 + x^2 - 4x - 4$

    $(x + 2)$ is a factor

13. $f(x) = 2x^3 + 3x^2 - 39x - 20$

    $x = 4$ is a root

Use the given information to find all the other information for each polynomial.

14. Function in factored form:

Function in standard form:

End behavior:

As $x \to -\infty$ :

As $x \to \infty$ :

Roots: $x = 3, -2, 0, 0$

Value of leading coefficient: 1

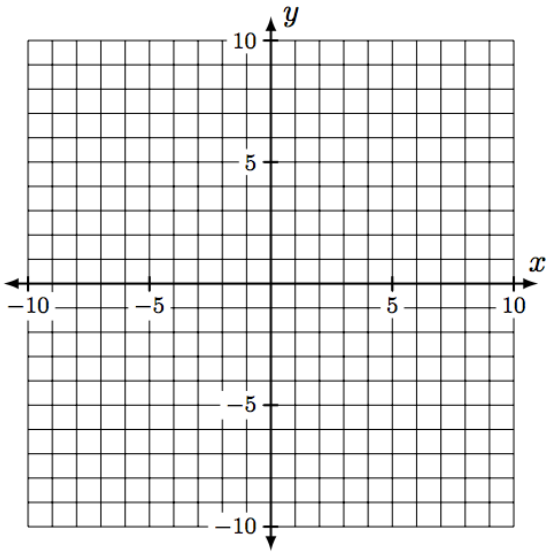
Degree:

y-intercept:

Domain:

Range:

Graph:



Use the given information to find all the other information for each polynomial.

15. Function in factored form:

$y = -2x(x + 1)(x - 2)$

Function in standard form:

End behavior:

As $x \to -\infty$ :

As $x \to \infty$ :

Roots:

Value of leading coefficient:

Degree:

y-intercept:

Domain:

Range:

Graph: