Name: Key Date: _____ Block: _____

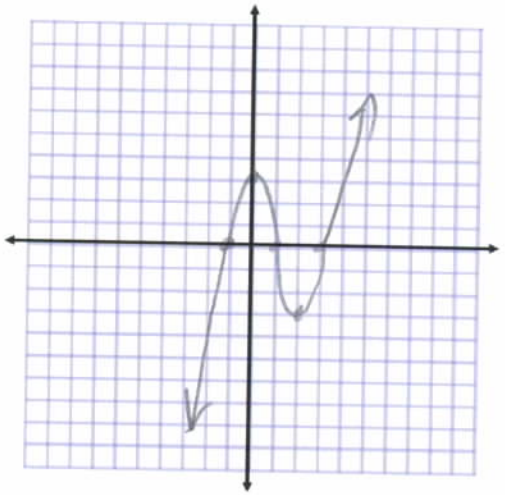
Unit 6: Test Review – Partner Portion

Graphing: Graph the following equations/inequalities

1. $f(x) = (x-3)(x-1)(x+1)$

$f(0) = 3$

$f(2) = -3$

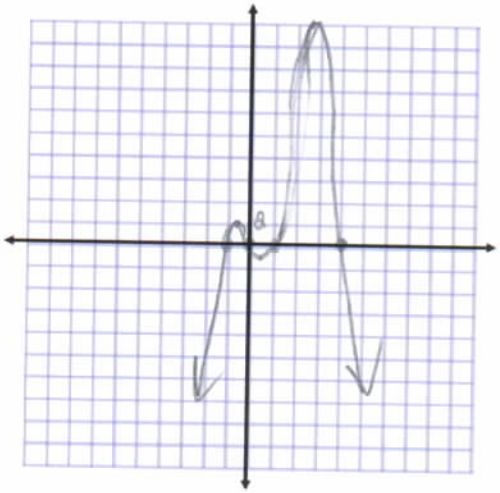


2. $f(x) = -x(x-4)(x-1)(x+1)$

$f(-0.5) = 1.6875$

$f(0.5) = -1.313$

$f(2.5) = 19.688$



3. $f(x) = x^5 - 2x^3 + x$

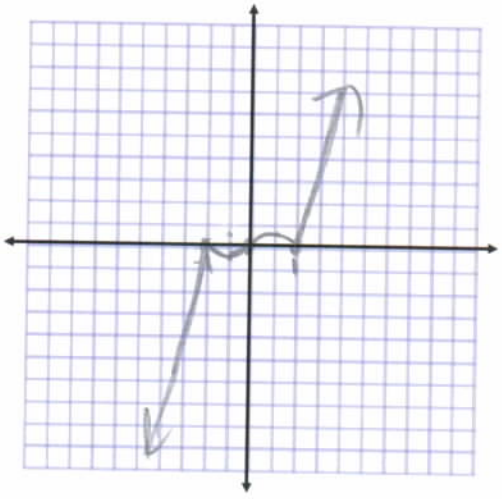
$x(x^4 - 2x^2 + 1)$

$x(x^2-1)(x^2-1)$

$x(x-1)(x+1)(x-1)(x+1)$

$f(-0.5) = -0.2813$

$f(0.5) = 0.2813$



4. $y = |-x^2 - 4x|$

$y = -x^2 - 4x$

$-y = -x^2 - 4x$

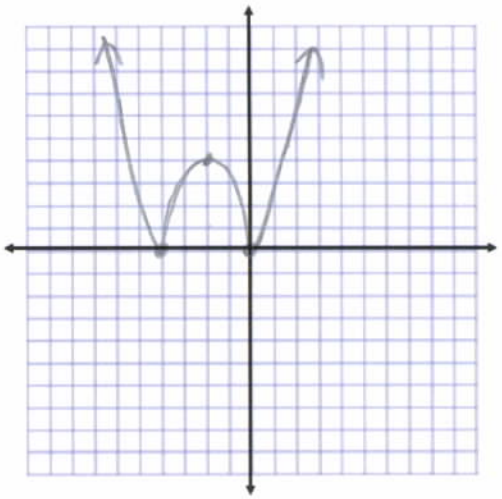
$y = x^2 + 4x$

$y = -x(x+4)$

$f(-2) = -4$

$y = x(x+4)$

$f(-2) = 4$



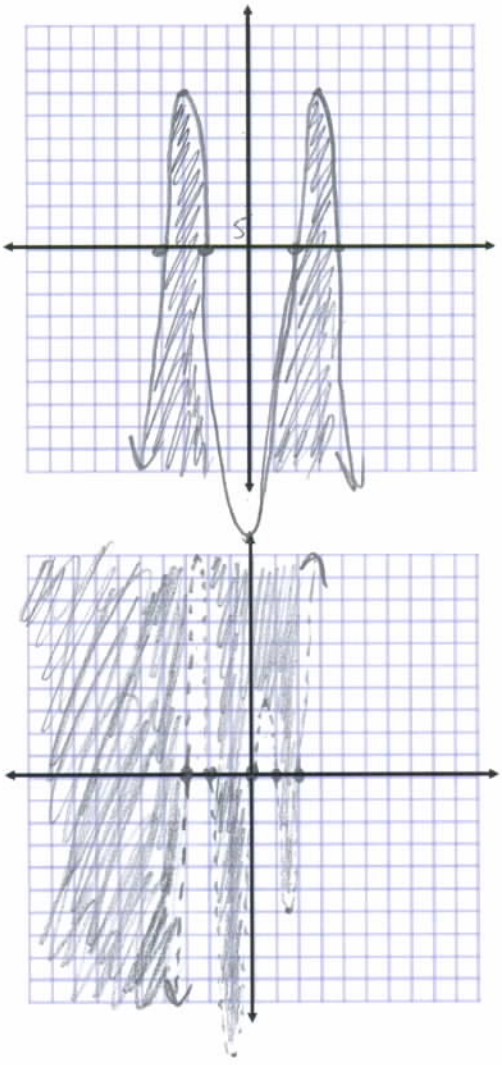
5. $y \leq -(x^2 - 4)(x^2 - 16)$

$y \leq -(x-2)(x+2)(x-4)(x+4)$

$f(-3) = 35$

$f(0) = -64$

$f(3) = 35$



6. $y > x(x^2 + x - 2)(x^2 + x - 6)$

$y > x(x+2)(x-1)(x+3)(x-2)$

$f(-2.5) = 9.84375$

$f(-1) = -12$

$f(0.5) = 3.28125$

$f(1.5) = -5.90625$

Unit 6: Test Review – Individual Portion

Simplify: Simplify the following

7. $(2x^3 - 4x^2y + 3xy^2 - y^3) + (x^2 - 3x^2y + y^3)$

$2x^3 + x^2 - 7x^2y + 3xy^2$

8. $(4x^2 + 2x - 5xy) - (2x^2 + 2x - 5y)$

$4x^2 + 2x - 5xy - 2x^2 - 2x + 10y$

$4x^2 - 5xy + 10y$

9. $(x^2 + 3xy - y^2)(2x^2 - 4y^2)$

$2x^4 - 4x^2y^2 + 6x^3y - 12xy^3 - 2x^2y^2 + 4y^4$

$2x^4 + 6x^3y - 6x^2y^2 - 12xy^3 + 4y^4$

10. $\frac{(x^2-2x+1)(x^2+3x+2)}{(x^2+x-2)(x^2-1)} = \frac{(x-1)(x-1)(x+2)(x+1)}{(x+2)(x-1)(x-1)(x+1)} = 1$

Solving: Solve the following

11. $-x + 4 \geq 20$

$-4 \quad -4$

$-x \geq 16$

$x \leq 16$

12. $-2x + 3 < 5 - 3x$

$+3x \qquad +3x$

$x + 3 < 5$

$-3 \quad -3$

$x < 2$

13. $8 = |x + 4|$

$-8 = x + 4$

$-4 \qquad -4$

$-12 = x$

$8 = x + 4$

$-4 \qquad -4$

$4 = x$

14. $-3x + 4 = |-x - 8|$

$-3x + 4 = -x - 8$

$+3x \qquad +3x$

$4 = 2x - 8$

$+8 \qquad +8$

$12 = 2x$

$x = 6$

$-(-3x + 4) = -x - 8$

$3x - 4 = -x - 8$

$+x \qquad +x$

$4x - 4 = -8$

$+4 \quad +4$

$4x = -4$

$x = -4$

Directions: Identify the degree of the function and the leading coefficient

15. $y = -4x + 3x^2 - 4$

Degree = 2 → quadratic

Leading Coefficient → 3

16. $y = 3x^2 + 4x^2 - 3x - x^5 - 6$

Degree: 5 → quintic

Leading Coefficient → -1

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

Degree: 4 → quartic

Leading Coefficient → 1

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

Degree: 5 → quintic

Leading Coefficient → 1