Adv. Algebra 2 – Concept Quiz

Form A

Name: _Kaley_

Date: _____ Period: _____

10. What is a Polynomial?

1. Use, $f(x) = 8x - 3x^6 - x^3 - 5x^2$, to answer the questions below:

a) Write $f(x)$ in standard form.

$$f(x) = -3x^6 - x^3 - 5x^2 + 8x$$

b) What is leading coefficient of $f(x)$?

$$-3$$

c) What is the constant term of $f(x)$?

$$0$$

d) What is the degree of $f(x)$?

$$6$$

2. Clare wants to make an open-top box by cutting out corners of a 25 inch by 20 inch piece of poster board and then folding up the sides. The volume $V(x)$ in cubic inches of the open-top box is a function of the side length x in inches of the square cutouts.

a) Write an expression for $V(x)$.

$$V(x) = (25 - 2x)(20 - 2x)x$$

b) Is it possible to create a box with a volume of 825 in³? Explain how you found your answer.

No, Max is ~820.6

11. Add, Subtract, and Multiply Polynomials

a) $(8x^3 - 4x^2 - 6x + 2) - (9x^3 - x^2 - 11x + 8)$

$$-9x^3 + x^2 + 11x - 8$$

$$\boxed{-1x^3 - 3x^2 + 5x - 6}$$

b) $(3x - 2)^3$

$$(3x-2)(3x-2)(3x-2)$$
$$(9x^2 - 12x + 4)(3x - 2)$$
$$27x^3 - 36x^2 + 12x$$
$$\quad - 18x^2 + 24x - 8$$
$$\boxed{27x^3 - 54x^2 + 36x - 8}$$

10. What is a Polynomial?

1. Use, $f(x) = 15x - x^4 - 8x^7 - 3x^5$, to answer the questions below:

    a) Write $f(x)$ in standard form.

$$f(x) = -8x^7 - 3x^5 - x^4 + 15x$$

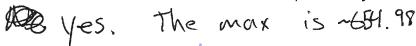   b) What is leading coefficient of $f(x)$?

$$-8$$

    c) What is the constant term of $f(x)$?

$$0$$

    d) What is the degree of $f(x)$?

$$7 \quad •$$

2. Clare wants to make an open-top box by cutting out corners of a 24 inch by 18 inch piece of poster board and then folding up the sides. The volume $V(x)$ in cubic inches of the open-top box is a function of the side length x in inches of the square cutouts.

    a) Write an expression for $V(x)$.

$$V(x) = (24 - 2x)(18 - 2x)(x)$$

    b) Is it possible to create a box with a volume of 650 in³? Explain how you found your answer.

    yes. The max is ~654.98

11. Add, Subtract, and Multiply Polynomials

a) $(7x^3 - 9x^2 - 5x + 7) - (12x^3 - 8x^2 - x + 9)$

$-12x^3 + 8x^2 + x - 9$

$$\boxed{-5x^3 - 1x^2 - 4x - 2}$$

b) $(2x - 3)^3$

$$(2x-3)(2x-3)(2x-3)$$
$$(4x^2 - 12x + 9)(2x - 3)$$
$$8x^3 - 24x^2 + 18x$$
$$\quad\quad -12x^2 + 36x - 27$$
$$\boxed{8x^3 + 16x^2 + 54x - 27}$$