UNIT 5 LESSON 1 INVESTIGATION 2 NOTES

Lesson Vocabulary

Add/subtract Polynomials - combine like terms

ex.) $f(x) = 3x^3 + 4x^2 + 5$ and $g(x) = -3x^3 - 2x^2 + 5x$

Find the sum and difference of the functions

$f(x) + g(x) = 3x^3 + 4x^2 + 5 - 3x^3 - 2x^2 + 5x$

$= 2x^2 + 5x + 5$

Degree = 2

$f(x) - g(x) = 3x^3 + 4x^2 + 5 - (-3x^3 - 2x^2 + 5x)$

$= 3x^3 + 4x^2 + 5 + 3x^3 + 2x^2 - 5x$

$= 6x^3 + 6x^2 - 5x + 5$

Degree = 3

Example Problem(s)

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a) Combine like terms

b) The degree of combined polynomials will always be less than or equal to the highest degree of the polynomials.

c) The # of zeros is less than or equal to the

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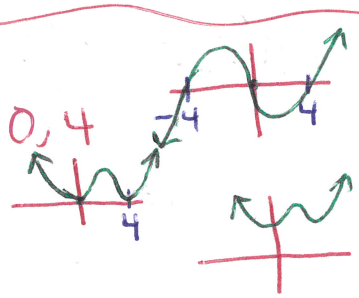
a) $F(x)$: degree = 3, zeros $x = -4, 0, 4$

$g(x)$: degree = 4, zeros $x = 0, 4$

$h(x)$: degree = 4, zeros - none



b) $F(x)+g(x) = x^3 - 16x + 16x^2 - 8x^3 + x^4$

$= x^4 - 7x^3 + 16x^2 - 16x$

$F(x)-g(x) = x^3 - 16x - (16x^2 - 8x^3 + x^4)$

$= x^3 - 16x - 16x^2 + 8x^3 - x^4$

$= -x^4 + 9x^3 - 16x^2 - 16x$

c) $g(x)-h(x) = 16x^2 - 8x^3 + x^4 - (x^4 - 8x^3 + 16x^2 + 4)$

$= 16x^2 - 8x^3 + x^4 - x^4 + 8x^3 - 16x^2 - 4$

$= -4$ degree = 0

$h(x)-F(x) = x^4 - 8x^3 + 16x^2 + 4 - (x^3 - 16x)$

$= x^4 - 8x^3 + 16x^2 + 4 - x^3 + 16x$

$= x^4 - 9x^3 + 16x^2 + 16x + 4$

degree = 4