Unit 2 Bare Necessities - Polynomials

Operations with Polynomials

To add or subtract polynomials:

1. Put a 1 in front of second parenthesis and distribute it
2. Combine any like terms (do not change the exponents!!)

To multiply polynomials:

1. Distribute or FOIL as needed
2. Multiply the numbers in front and add the exponents
3. Combine any like terms (do not change the exponents!!)

All Together!!

EX1. $(7x^4 - 7x^2 - 8) + (7x - 8 - 8x^4)$

EX2. $(p^4 - 4p^3 - 8p) - (-7p^4 - 5p^3 + 7p)$

EX3. $(6x - 3)(2x + 5)$

You Try!!

1. $5xy^2(4x^2y + 8xy - 2y)$

2. $(5y - 7)(2y + 2)$

3. $(5h^3 - 2h + 3) - (8h^3 + 6h^2 - h - 2)$

4. $(f + 3)(f^2 + 2f - 6)$

5. $(3k + 7)^2$

6. $(7g^3 + 4g^2 - 9g) + (8g - 6g^3 - 4g^2)$

Synthetic Division

1. Make sure terms are in order. Make sure you have every term down from the highest power.
2. Set binomial you are dividing by equal to zero and solve for x. That number goes in the box.
3. Line up coefficients next to box
4. Add to get below the line.
5. Multiply with box to get back above the line.
6. Answer starts one power less than highest power in original problem.

All Together!!

EX5. $(3x^2 + 4x - 12) \div (x + 5)$

EX6. $(x^4 - 3x^2 + 2x + 12) \div (x + 1)$

You Try!!

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

11. $(6x^4 + 4x^3 - x^2 + 9) \div (x + 1)$

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

13. $(x^3 - 3x^2 - 13x - 30) \div (x - 6)$

Zeroes, Multiplicity, and End Behavior

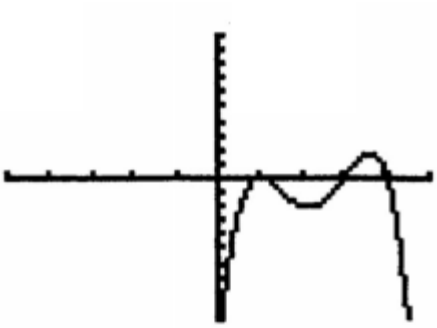
End Behavior:

	even exponent	odd exponent
positive coefficient		
negative coefficient		

Zeroes and Multiplicity:

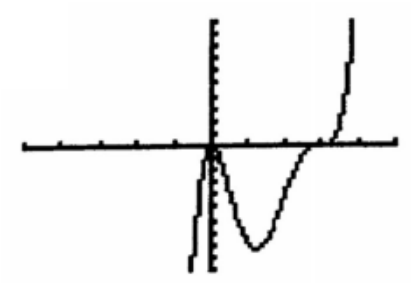
All Together!!

EX4.



You Try!!

7.



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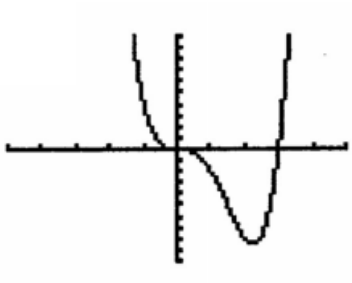

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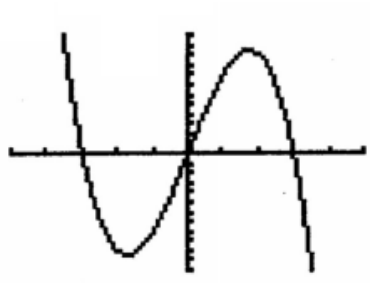


Extrema, Intervals for Increasing and Decreasing

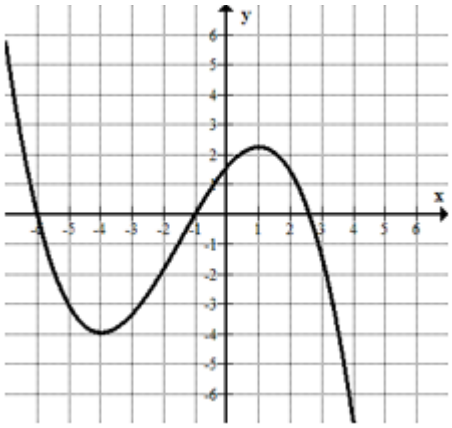
Extrema are “turning points”

Intervals are named using the x-values only! Ignore the y-values!

- increasing - on a path going up
- decreasing - on a path going down

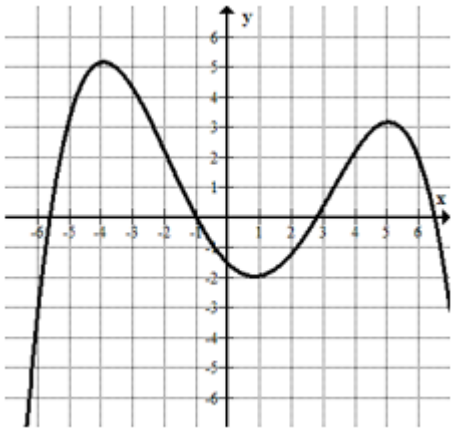
All Together!!

EX5.



You Try!!

10.



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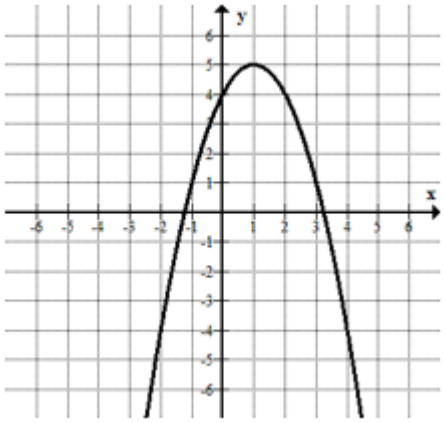

12.