Name: _____ Date: _____ Block: _____

Algebra 2 Honors- Week 13 Homework

Monday-

ID: 1

Algebra 2 Name_____

Uses of Polynomial Division Worksheet

Date_____ Period____

Evaluate each function at the given value.

1) $f(n) = -3n^4 + 7n^3 + 3n^2 - 7n - 18$ at $n = 2$

2) $f(n) = -3n^3 + 14n^2 - 4n - 6$ at $n = 4$

3) $f(a) = a^4 - 6a^3 + 3a^2 + 23a - 3$ at $a = 4$

4) $f(x) = -x^4 - 3x^3 + 10x^2 - 4x - 28$ at $x = -5$

Determine whether each binomial is a factor of the polynomial. Show your work!

5) $f(a) = a^5 - 3a^4 + 5a^3 - 11a^2 - 8a - 6$ at $a = 3$

6) $f(n) = 4n^4 + 7n^3 - 2n^2 - n - 10$ at $n = -2$

7) $f(n) = n^5 - 5n^4 - 2n^3 - 29n^2 + 32n - 16$ at $n = 6$

8) $f(a) = a^4 + a^3 - 26a^2 + 29a - 30$ at $a = 4$

9) $f(n) = n^4 - 2n^3 - n^2 - 9n + 21$ at $n = 3$

10) $f(a) = a^4 + 8a^3 + 11a^2 - 17a + 11$ at $a = -5$

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Introduction to Polynomial Equations Worksheet

Date_____ Period____

Write a polynomial function of least degree with integral coefficients that has the given zeros.

1) $-1,\ -5,\ 4$

2) $1,\ -3,\ \sqrt{3}$

3) $-2,\ -1 + \sqrt{10}$

4) $-1,\ -2 + 3i$

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Tuesday-

Find all zeros. One zero has been given.

5) $f(x) = 2x^3 - 9x^2 + 7x + 6;\ 2$

6) $f(x) = x^3 + 3x^2 - 41x + 5;\ 5$

7) $f(x) = 9x^3 + 27x^2 + 23x + 5;\ -\frac{5}{3}$

8) $f(x) = 2x^3 - 4x^2 - 21x - 10;\ -2$

9) Given the polynomial $x^4 - 5x^3 - 3x^2 + 13x + 10 = 0$, find the remainding zeros give that -1 is a root twice.

10) How many times is -1 a root of $x^5 + 3x^4 + 2x^3 - 2x^2 - 3x - 1 = 0$?

Find the rational and irrational roots of each equation.

1. $x^3 - x^2 - 4x + 4 = 0$
2. $x^3 - 4x^2 - 3x + 18 = 0$
3. $x^3 - 3x^2 + 4x - 12 = 0$
4. $x^3 - x^2 - 3x + 3 = 0$
5. $x^4 + x^3 - 7x^2 - 13x - 6 = 0$
6. $x^4 + x^3 + 6x - 36 = 0$
7. $x^4 - 1 = 0$
8. $x^5 - 3x^4 - 5x^3 + 15x^2 + 4x - 12 = 0$

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Wednesday-

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Algebra 2 Name_____

Graphing Polynomials

Date_____ Period____

Describe the end behavior of each function.

1) $f(x) = -x^5 + 3x^3 + 3$

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

3) $f(x) = x^3 - 2x^2 - 3$

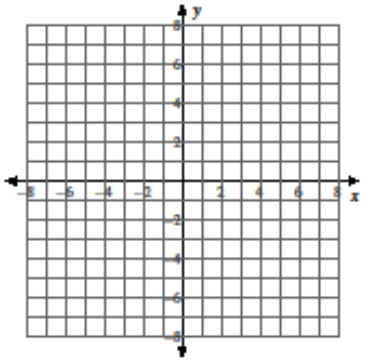
4) $f(x) = -x^3 + 2x^2 + 1$

5) $f(x) = 2x^2 - 16x + 31$

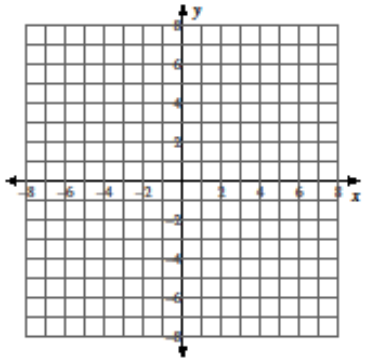
6) $f(x) = -x^4 - 4x^3 - 3x^2 + 3x + 4$

Sketch the graph of each function.

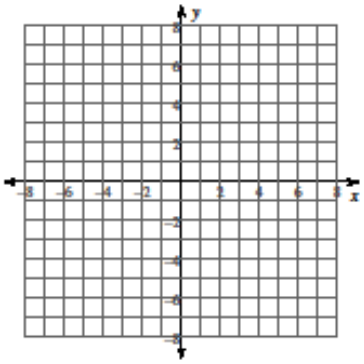
7) $f(x) = -x^3 + 3x^2$



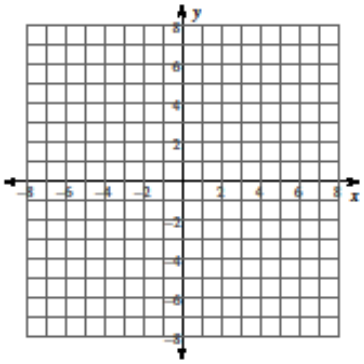
8) $f(x) = x^4 - 2x^2 + 1$



9) $f(x) = x^4 - x^3 - 2x^2$



10) $f(x) = x^3 - 8x^2 + 20x - 16$



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Thursday-

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Intercepts of Polynomial Equations Assignment

Date_____ Period____

State the x- and y-intercepts.

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

2) $f(x) = (x^2 + 3)(2x^2 + 1)$

3) $f(x) = (5x - 1)(x^2 + 8)(2x^2 - 7)$

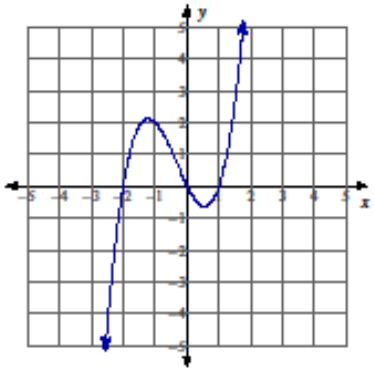
4) $f(x) = x^3 - 3x + 2$

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

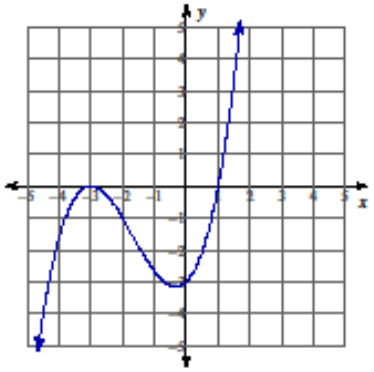
6) $f(x) = x^4 + 5x^3 - x^2 - 5x$

Write the polynomail function that matches this graph.

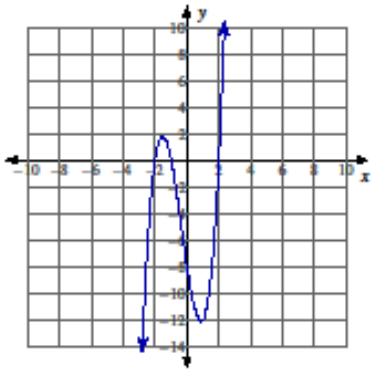
7)



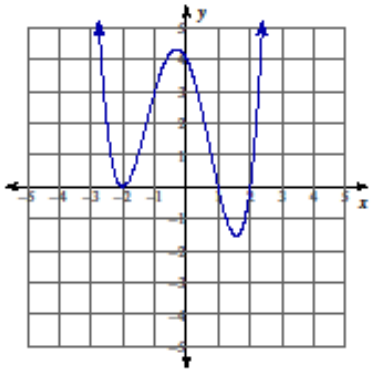
8)



9)



10)



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Friday-

Solving Polynomial Equations Assignment

1. Without distributing, find the constant (last) term of this polynomial equation: $(x + 5)(x – 4)(x + 2)^2(x – 7)= 0$

List the possible solutions of the following equations. DO NOT SOLVE.

2. $x^3 – 6x + 12 = 0$

3. $2x^3 – 7x^2 + 6x + 9 = 0$

4. $10x^8 + 6x – 6 = 0$

Find the rational and irrational roots of each equation.

5. $2x^3 + 7x^2 + 5x + 1 = 0$

6. $5x^3 + 7x^2 - 46x + 24 = 0$

7. $2x^3 – 17x^2 + 22x – 7 = 0$

8. $2x^4 – x^3 – 6x^2 - 8x – 5 = 0$

9. $2x^4 - 9x^3 - 21x^2 + 16x + 12 = 0$

10. $3x^5 + 8x^4 - 23x^3 - 54x^2 + 30x + 36 = 0$

11. $3x^6 – 8x^5 - 18x^4 + 40x^3 + 27x^2 - 32x - 12 = 0$