NAME_____date_____

Algebra II Honors Mid-term Exam Review Sheet

Use this sheet as a study guide. If you know each of the topics listed, you should be ready for the exam. The format of the exam will be similar to our regular class tests, but it covers A LOT of material --you must STUDY! GOOD LUCK!

Exam Date: Thursday January 21st
Review Day/AMS: We will review in class on Thursday and Friday January 14th and 15th, I will be available after school. Please feel free to come see me with questions.

Chapter 1

- PEMDAS
- Properties of Real Numbers (commutative, distributive, etc.)
- Sets of Real Numbers (Real, Rational, Irrational, etc.)
- Properties of Equality (Reflexive, Symmetric, etc.)
- Solving equations
- Solving for a given variable
- Absolute value equations
- Solving Inequalities
- Absolute Value Inequalities
- Combining like terms
- Inverses

Chapter 2

- Domain/Range
- Function vs. relation
- Using function notation
- Determining whether a function is linear
- Slope-intercept form of a linear equation
- Point-slope form of a linear equation (optional)
- Parallel vs. perpendicular lines
- Graphing linear equations

- X and y intercepts
- Slope
- Writing linear equations given information (eg: slope, intercepts etc..)
- Vertical line test
- Mapping
- Graphing linear inequalities and shading appropriately
- Scatter plots
- Line of best fit
- Correlation

Chapter 3

- 3 different types of systems
- Solve systems by graphing (find intersection point)
- Solve systems algebraically (elimination or substitution)
- Solving systems with 3 equations/3 unknowns
- Solving systems of inequalities (shading)
- Systems word problems

Chapter 5:

- Rules of exponents
- Monomials
- Adding/Subtracting Polynomials
- Multiplying Polynomials, FOIL
- Dividing Polynomials by a Monomial
- Dividing Polynomials by a Binomial
- Synthetic Division
- Factoring
    - ✓ GCF
    - ✓ Difference of 2 Squares
    - ✓ Difference/Sum of 2 Cubes
    - ✓ Trinomials (Easy, Hard, PST)
    - ✓ Grouping
- Roots of Real Numbers
- Simplifying Radical Expressions
- Conjugates

Name:

Algebra II Honors Midterm Review Part 1

These problems are designed to help you prepare yourself for the midterm. You will need to spend time reviewing your homework assignments, quizzes, and tests. Make sure that you know all of the material covered in this class, not just the practice problems here.

1.) Simplify:

a. $[7 - (8 - 6)^2] - 1$

b. $(12 - 20 \div 4 + 5) \div 3 \bullet 4$

2.) Solve each equation:

a. $3(2x - 5) = 4x + 6 - x$

b. $5(a - 1) = 2(a + 5)$

3.) Solve each equation:

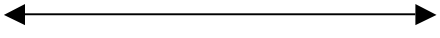
a. $2|4x - 5| = 22$

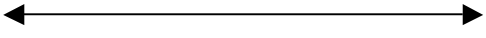
b. $|3x + 7| + 4 = 0$

4.) Solve the following inequalities and graph on a number line.

a. $3x - 3 < 6$

b. $x + 4 \leq 1$ or $2x + 5 > 9$





5.) Is this relation a function? Explain! {(2,0) (3,0) (4,0) (5,0)}

6.) Given $f(x) = 2x^2 - 4$ FIND:

a. f (-1)

b. f(2a)

7.) Write the equation for a line through the following points: (2,3) and (0,4)

8.) Write the equation for a line through (3,5) and perpendicular to $3x - y = 6$

9.) Find the x and y-intercepts for $3x - 5y = 15$

10.)Graph the following lines or inequalities (use graph paper)

a. $3x - y = 6$
b. $x - y > 2$

11.)Solve the each system using any method (graphing, elimination, substitution). Identify the type of system.

a. $2x + 3y = 10$
   $x + 6y = 32$

b. $x = 4y - 10$
   $5x + 3y = -4$

12.)Solve the system of inequalities and shade appropriately (use graph paper).

a. $x + y < 5$
   $x > 2$

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Algebra II Honors Midterm Review Part 2

1.Simplify the following:

a.) $\left(\frac{-4p^3q^7r^5}{2p^9q^{-4}r^{12}}\right)^2$

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

c) $(-10x^2y + 2xy) - \left(4x^2y + 2xy - 5y^2x\right)$

d. $(3x + 5)(2x - 7)$

2.Divide:

b. $\frac{4x^4y^3z^6 - 12xy^{-3}z^5}{16xyz}$

b. $(3x^4 - 2x^2 + 6)(x + 1)^{-1}$

3. Factor:

a. $x^2y^3z^4 - 3xy^3z^2 + 6x^3y^2z$

b. $9x^2 - 16y^4$

c. $3x^2 - 14x + 8$

d. $9x^2 - 30x + 25$ e. $x^2 - 4x - 12$ f. $3x^2 - 6x + 12x - 24$

4. Simplify the following expressions

a. $\sqrt{169}$ b. $\sqrt{36y^2}$ c. $\pm\sqrt{144y^8}$

d. $\sqrt[3]{-8x^6y^9}$ e. $\sqrt{(x-5)^6}$ f. $\sqrt[4]{81a^{12}}$

5. Simplify

a. $\sqrt{200}$ b. $-2\sqrt{150}$ c. $\sqrt[4]{96}$

d. $\sqrt{27} - 3\sqrt{12}$ e. $5\sqrt{8} - 2\sqrt{18} + 4\sqrt{48}$ f. $(3\sqrt{5})(2\sqrt{10})$

g. $(\sqrt{3}+5)(\sqrt{6}-1)$

h. $\sqrt{\frac{10}{9}}$

i. $\sqrt{\frac{11}{6}}$

j. $\sqrt[3]{\frac{15}{2}}$

k. $\frac{\sqrt{3}}{\sqrt{2}+4}$