

Final Study Guide

Math Lab

Answer all of the following questions on a separate piece of paper. You will be turning it in for credit on the day of your final.

Cluster #1: Add, Subtract & Multiply Polynomials

(2 questions on test)

Create equivalent expressions by...

- Applying the distributive property
- Adding polynomials
- Subtracting polynomials
- Multiplying polynomials

1) Find the following sum and/or differences. Identify the degree as well as naming the polynomials based on the number of terms.

- a. $(x^4 + 7x^2 + 8x - 4) + 3(x^3 - 7x + 6)$ Degree _____ Name _____
- b. $(x^3 - 9x^2 + 10x + 7) - (x^3 - 8x^2 + 4x + 7)$ Degree _____ Name _____
- c. $8(x^2 - 9) + 4(x + 3) - 5(x^2 - 10x)$ Degree _____ Name _____

2) The sum of unknown polynomial and $4x^2 - 7x + 10$ is $3x + 9$. What is the unknown polynomial? Explain your logic.

3) Find the following products. At least one of these products must be organized in a tabular manner.

- a. $7x^2(4x^2 - 3x + 5)$
- b. $(2x + 5)(x - 7)$
- c. $(a + b + c)^2$
- d. $(a + 6)^3$

Cluster #2: Solving Linear Equations

(3 questions on test)

Solve and graph linear equations which involve

- Combining like terms
- Distribution
- Variables on both sides

Solve each of the following equations. Show your work that allows you to identify the solution for x. No decimals as answers, leave as fractions if necessary.

1) $^{-3}/_2x = -18$

2) $-4x - 10 = 24$

3) $^{-6}/_7(y - 42) - 3 = 9$

4) $1/3x + 5 + ^3/4x = 18$

5) $3(x - 5) - 9 = 5x + 21$

6) $\frac{3}{x} = \frac{2}{x-5}$

Cluster #3: Solving Linear Inequalities

(3 questions on test)

Solve and graph simple inequalities that involve...

- Combining like terms
- Distribution
- Variables on both sides
- Multiply or Dividing by a negative quantity

Solve and graph...

- "And" inequalities
- "Or" inequalities

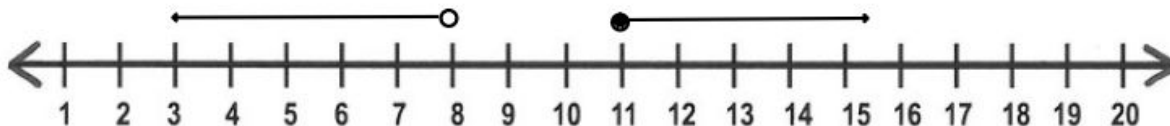
Solve the following inequalities and graph the solution sets.

1) $3/4(x + 12) > 1/4(x - 8)$

2) $3(5 - 5x) \leq 5x$

3) $-12 < -2x - 8 \leq 20$

4) Write an inequality whose solution set is shown below.



5) A prison needs to order clothes for their inmates. The majority of the prisoners will wear the "one-size-fits-all" option. However, the inmates who are very tall as well as the inmates who are short will need their own custom outfit. The "one-size-fits-all" outfit is acceptable for those people from 5 foot 7 inches up to 6 foot 2 inches. Write an inequality showing heights of those inmates who will need customized clothing.

Cluster #4: Solving Equations with Unusual Structures

(4 questions on test)

Solve equations that...

- Have been factored
- Have variables in the denominator
- Have multiple variables

Solve the following equations for all possible values of x.

1) $(x - 2)(4x - 13) = 0$

2) $3x^2 + 5x = 0$

3) Solve the following equation for A.

$$2x - 4(A + 3) = 10x$$

4) Use your answer from #6 to determine the value of A so that the original equation is true for $x = -8$.

Cluster #5: Graphing Two-Variable Equations and Inequalities

(1 questions on test)

Graph a linear equation in...

Standard Form

Slope-Intercept Form

Given a two variable inequality, determine the solution set by...

Graphing the corresponding equality

Identify and shade the correct half-plane

Graph the following inequalities. Shade the half-plane appropriately.

1) $4x + 3y < -24$

2) $y \geq \frac{3}{4}x - 5$

3) At a movie theatre, the price of admissions for adults is \$8 and children is \$6. At the end of the night the theatre had made \$120.

a) Write an equation to represent this situation.

b) Graph the inequality by finding the intercepts.

Cluster #6: Solving Systems of Equations

(2 questions on test)

Solve a system of equations...

By elimination

By substitution

From a word problem