Objectives:

Students will be able to solve linear equations.

Students will be able derive the equation of a line in various forms (slope-intercept, point-slope, and standard form).

Solving Linear Equations

Solve the following expressions:

1) $3 = 2p + 5$ $p = -1$

2) $7 - 5/3\ c = 22$ $c = -9$

3) $3a + 4 = 2a + 15$ $a = 11$

4) $3y + 7 = y - 3$ $y = -5$

Solving Linear Equations Cont.

Solve the following expressions:

5) $2(b + 3) = 4b - 2$ $b = 4$

6) $-4(n + 2) = 3(n - 4)$ $n = 4/7$

7) $5(x - 4) = 5x + 12$ no solution

8) $3(x + 5) = 3x + 15$ all real numbers

Solving Linear Equations Cont.

You are ordering T-shirts from a catalog. Each T-shirt costs $15. The cost of shipping is $6 no matter how many you order. The total cost is $111. How many T-shirts did you order?

7 T-shirts

Forms of Linear Equations

Form	Equation	Key Facts
Slope-Intercept Form	$y = mx + b$	The graph is a line with slope m and y-intercept b
Standard Form	$Ax + By = C$ **A, B, and C cannot be fractions and A must be positive	The graph is a line with intercepts $x = C/A$ and $y = C/B$
Point-Slope Form	$y - y_1 = m(x - x_1)$	The graph is a line that has slope m and passes through (x_1, y_1).

Forms of Linear Equations

Write the equation of the line in standard form, point-slope form, and slope-intercept form that passes through the points (0, 6) and (2, 3).

Slope-intercept: $y = -3/2\,x + 6$

Point-slope form: $y - 3 = -3/2(x - 2)$

Standard form: $3x + 2y = 12$

Homework

Writing Linear Equations and Multi-Step Equations Worksheets (**odds only**)