**Solving Linear Equations**

In Algebra, you learned how to solve a linear equation. This course will help you apply your algebra skills to solve geometric problems. Review how to solve equations by reading the example below.

|  |  |  |
| --- | --- | --- |
| * **Simplify**. Combine like terms on each side of the equation whenever possible. | 3*x* − 2 + 4 = *x* − 6 | Combine like terms |
|  | 3*x* + 2 = *x* − 6 |  |
|  | *−x* = −*x* | Subtract *x* on both sides |
| * **Keep equations balanced.** The equal sign in an equation tells you that the expressions on the left and right are balanced. Anything done to the equation must keep that balance. | 2*x* + 2 = −6 |  |
| −2 = −2 | Subtract 2 on both sides |
| -x/2=-8/2 | Divide both sides by 2 |
| *x* = −4 |  |
| * **Move your *x-*terms to one side of the equation.** Isolate all variables on one side of the equation and the constants on the other. | | |
| * **Undo operations.** Use the fact that addition is the opposite of subtraction and that multiplication is the opposite of division to solve for *x.* For example, in the equation 2*x* = −8 , since the 2 and the *x* are multiplied, then dividing both sides by 2 will get *x* alone. | | |

* **1-32.** One goal of this course will be to review and enhance your algebra skills. Read the Math Notes box for this lesson. Then solve for *x* in each equation below, show all steps leading to your solution, and check your answer.

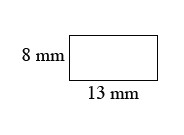
a. 34*x* − 18 = 10*x* – 9 b. 4*x* − 5 = 4*x* + 10

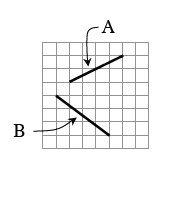
c. 3(*x* − 5) + 2(3*x* + 1) = 45 d. −2(*x* + 4) + 6 = −3

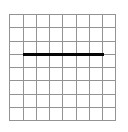
* **1-34.** For each of the equations below, solve for *y* in terms of *x*.

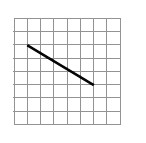
a. 2*x* − 3*y* = 125 b. *x* + 2*y* = 7

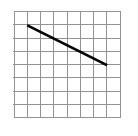
* **1-35.** Find the area of the rectangle below. Be sure to include units in your answer.

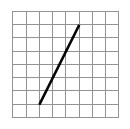


* **1-36.** The **slope** of a line is a measure of its steepness and indicates whether it goes up or down from left to right. For example, the slope of the line segment A at right is 1/2, while the slope of the line segment B is -3/4. For each line segment below, find the slope. You may want to copy each line segment on graph paper in order to draw slope triangles.
  1. a. b. c. d.



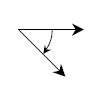


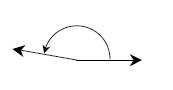


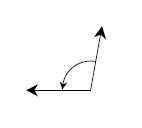


* **1-42.** Estimate the size of each angle below to the nearest 10°. A right angle is shown for reference so you should not need a protractor.

a. b. c.







* **1-44.** Angela had a rectangular piece of paper and then cut a rectangle out of a corner as shown below. Find the area and perimeter of the resulting shape. Assume all measurements are in centimeters.

