

**Lesson #2 A-2: Solving Linear Equations and Creating Linear Equations of Direct Variation**  
(Reference: Lesson #7 & #8 in book)**Problem**

1. **Solve each of the following equations for the indicated variable. (Show all of your work.)**

1.  $2x + 6 = 20$

2.  $43 = 11 - 8x$

3. Solve  $8x - 8 + 4x + 2 = 30$  for  $x$ .

4. Solve  $2x + 1 = -3(x + 3)$  for  $x$ .

5. Solve  $6(2x - 2) = -8(x + 5)$  for  $x$ .

6. Solve  $5(2x + 4) - 2x = 6 + 2(3x + 12)$  for  $x$ .

7. Solve  $x - 3y = 28$  for  $x$ .

8. Solve  $20x - 10y = 30$  for  $y$ .

9. Solve  $36 = 3x - 9y$  for  $y$ .

10. Solve  $4x - 4y = 10 + x$  for  $x$ .

11. Solve for  $3(x + 6) - 4y - 2x + 3 = 50$  for  $y$ .

12. Solve  $6(x + 3) - 2x = 4(y + 2) - 2y$  for  $y$ .

13. **Solve each of the following word problems by creating a direct variation equation and then solving each of the equation for what is specified in the question.**

13. The number of millimeters varies directly with the number of centimeters. If a board measures 125 millimeters, it measures 12.5 centimeters. If another board measures 50 centimeters, how many millimeters does it measure?

14. The cost of gas varies directly with the number of gallons purchased. If 12 gallons can be purchased for \$30, how many gallons of gas could you get for \$55?

15. The amount of dirt needed to cover a garden varies directly with the area of the garden. If 2 bags of dirt are needed to cover a garden with an area of 54 square feet, how many bags are needed to cover a garden with an area of 135 square feet?

16. The number of pounds varies directly with the number of ounces. A bowling ball that weighs 12 pounds weighs 192 ounces. If another bowling ball weighs 240 ounces, how many pounds does the bowling ball weigh?