

MTH 60 group work
Monday, 2/2/2015

Names Solutions

Work the following problems paying careful attention to formatting. One person from each group will hand in the work. Compare your answers and decide who will turn in this assignment for the group. Make sure each group member's name is on the sheet to be turned in! You must work as a group to earn credit. **No individual submissions.**

1. Solve $V = \pi r^2 h$ for h .

$$V = \pi r^2 h$$

$$\frac{V}{\pi r^2} = \frac{\pi r^2 h}{\pi r^2}$$

$$\frac{V}{\pi r^2} = h$$

$$h = \frac{V}{\pi r^2}$$

2. Solve $D = at + bt$ for t .

$$D = at + bt$$

$$D = t(a + b)$$

$$\frac{D}{a+b} = \frac{t(a+b)}{a+b}$$

$$\frac{D}{a+b} = t$$

$$t = \frac{D}{a+b}$$

3. Solve $S = P + Prt$ for t .

$$S = P + Prt$$

$$S - P = P + Prt - P$$

$$S - P = Prt$$

$$\frac{S - P}{Pr} = \frac{Prt}{Pr}$$

$$\frac{S - P}{Pr} = t$$

$$t = \frac{S - P}{Pr}$$

4. Solve $A = \frac{1}{2}h(a + b)$ for a .

$$A = \frac{1}{2}h(a + b)$$

$$2A = 2 \cdot \frac{1}{2}h(a + b)$$

$$2A = h(a + b)$$

$$2A = ha + hb$$

$$2A - hb = ha + hb - hb$$

$$2A - hb = ha$$

$$\frac{2A - hb}{h} = \frac{ha}{h}$$

$$\frac{2A - hb}{h} = a$$

5. Solve $y = (a-b)x + 3$ for x .

$$y = (a-b)x + 3$$

$$y - 3 = (a-b)x + 3 - 3$$

$$y - 3 = (a-b)x$$

$$\frac{y-3}{a-b} = \frac{(a-b)x}{a-b}$$

$$\frac{y-3}{a-b} = x$$

$$x = \frac{y-3}{a-b}$$

6. Solve $y = Ax + Bx + C$ for x .

$$y = Ax + Bx + C$$

$$y - C = Ax + Bx + C - C$$

$$y - C = Ax + Bx$$

$$y - C = x(A + B)$$

$$\frac{y-C}{A+B} = \frac{x(A+B)}{A+B}$$

$$\frac{y-C}{A+B} = x$$

$$x = \frac{y-C}{A+B}$$

7. The quotient of a number and 14 is 8. Find the number. Don't forget to define your variable, show your work, and answer in a sentence.

Let N represent the number.

$$\frac{N}{14} = 8$$

$$14 \cdot \frac{N}{14} = 14 \cdot 8$$

$$N = 112$$

The number is 112.

8. A number increased by 12 is four times the number. Find the number. Don't forget to define your variable, show your work, and answer in a sentence.

Let n represent the number.

$$n + 12 = 4n$$

$$n + 12 - n = 4n - n$$

$$12 = 3n$$

$$\frac{12}{3} = \frac{3n}{3}$$

$$4 = n$$

The number is 4.

9. The sum of five and three times a number is 59. Find the number. Don't forget to define your variable, show your work, and answer in a sentence.

Let A represent the number.

$$5 + 3A = 59$$

$$5 + 3A - 5 = 59 - 5$$

$$3A = 54$$

$$\frac{3A}{3} = \frac{54}{3}$$

$$A = 18$$

The number is 18.

10. Four times the sum of a number and three is 72. Find the number. Don't forget to define your variable, show your work, and answer in a sentence.

Let B represent the number.

$$4(B + 3) = 72$$

$$4B + 12 = 72$$

$$4B + 12 - 12 = 72 - 12$$

$$4B = 60$$

$$\frac{4B}{4} = \frac{60}{4}$$

$$B = 15$$

The number is 15.

11. If the quotient of four times a number and five is decreased by two, the result is six. Find the number. Don't forget to define your variable, show your work, and answer in a sentence.

Let D represent the number

$$\frac{4N}{5} - 2 = 6$$

$$5\left(\frac{4N}{5} - 2\right) = 5 \cdot 6$$

$$5 \cdot \frac{4N}{5} - 5 \cdot 2 = 30$$

$$\frac{20N}{5} - 10 = 30$$

$$4N - 10 = 30$$

$$4N - 10 + 10 = 30 + 10$$

$$4N = 40$$

$$\frac{4N}{4} = \frac{40}{4}$$

$$N = 10$$

The number is 10.

12. After a 30% reduction, you purchase a DVD player for \$98. What was the price before the reduction? Don't forget to define your variable, show your work, and answer in a sentence.

Let P represent the price (in dollars) of the DVD player before the reduction.

price before reduction - reduction = sale price

$$P - 0.30P = 98$$

$$0.70P = 98$$

$$\frac{0.7P}{0.7} = \frac{98}{0.7}$$

$$P = 140$$

The price of the DVD player before the reduction was \$140.