

1.7 Homework

Tuesday, February 14, 2017
9:11 AM

Homework 1.7 pp. 160-161

Name Key

1-15 odd, 21-27 odd, 31, 32 and 40

Odd answers are in book and 32) 15 liters of 20% and 10 liters of 35% 40) \$18,000 at 5.5% and \$7,000 at 8.3%

Write a mathematical expression for the quantity described verbally:

1) Five more than three times a number x .

1. $3x + 5$

3) Seventeen percent of a number x .

3. $0.17x$

5) **Area of a Rectangle**—The area of a rectangle whose length is 12 more than its width x .

$L = x + 12$ $W = x$

5. $A = x(x + 12)$

7) **Salary Increase**—A salary after 4.5% increase, if the original salary is x dollars.

$x + .045x$

7. $1.045x$

9) **Sale Price**—Sale price of an item marked x dollars, if 40% is discounted from the marked price.

$x \rightarrow .60x$

9. $0.60x$

Choose a variable and write a mathematical expression for the quantity described verbally.

11) **Total Cost**—The total cost is \$28,000 increased by 9% plus \$19.85 for each item produced.

$C = \text{total cost} + p \times \text{items produced}$
 $C = (128000 + .09(28000)) + 19.85p$

11. $C = 1.09(28000) + 19.85p$

13) **Revenue**—The revenue when each item sells for \$3.75.

$R = \text{Revenue}$ $n = \text{number of items}$

13. $R = 3.75n$

Write the specified quantity as a function of the specified variable. It will help in each case to draw a picture.

15) The height of a right circular cylinder equals its diameter.

Write the volume of the cylinder as a function of its radius.

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



15. $V = 2\pi r^3$

Write an equation for the problem and solve the problem.

21) One positive number is 4 times another positive number.

The sum of the numbers is 620. Find the two numbers.

x
 $4x$

21. $x + 4x = 620$

124 & 496

23) **Salary Increase**—Mark received a 3.5% increase. His salary after the raise was \$36,432.

What was his salary before the raise?

$S + .035S = 36432$

$1.035S = 36432$

$S = 35200$

23. $1.035S = 36432$

$S = \$35,200$

25) **Travel Time**—A traveler averaged 52 miles per hour on a 182-mile trip. How many hours were spent on the trip?

25. 3.5 hrs

$$D = rt$$

$$182 = 52t$$

$$t = 3.5$$

27) **Sale Price**—At a shirt sale, Jackson sees two shirts that he likes equally well. Which is the better bargain, and **why**?

27. 40% off \$20.25
While the 25% off is \$20.25. The 40% off is cheaper and the better bargain.



$$x = .40x$$

$$.60x$$

$$.60(33)$$

$$\text{or } 19.80$$

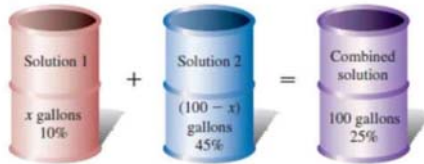
$$x = .25x$$

$$.75x$$

$$.75(27) = 20.25$$

31) **Mixing Solutions**: How much 10% solution and how much 45% solution should be mixed together to make 100 gallons of 25% solution.

31. 52.14 gal of 10%
~~42.86 gal of 45%~~



$$.10x + .45(100 - x) = .25(100)$$

$$.10x + 45 - .45x = 25$$

$$-.35x = -20$$

$$x = 57.14g$$

32) **Mixing Solutions**—The chemistry lab at the University of Hardwoods keeps two acid solutions on hand. One is 20% acid and the other is 35% acid. How much 20% acid solution and how much 35% solution should be used to prepare 25 liters of 26% acid solution?

32. 15.2 of 20%
10.2 of 35%

$$.20x + .35(25 - x) = .26(25)$$

$$.20x + 8.75 - .35x = 6.5$$

$$-.15x = -2.25$$

$$x = 15$$

40) **Investment Returns**:

Jackie invests \$25,000, part at 5.5% annual interest and the balance at 8.3% annual interest. How much is invested at each rate if Jackie receives a 1-year interest payment of \$1571.

40. \$18,000 at 5.5%
7,000 at 8.3%

$$.055x + .083(25,000 - x) = 1571$$

$$.055x + 2075 - .083x = 1571$$

$$-.028x = -504$$

$$x = 18,000$$