

DAY 2 NOTES

15.) Jon and Sara are planting tulip bulbs. Jon has planted 60 bulbs and is planting at a rate of 44 bulbs per hour. Sara has planted 96 bulbs and is planting at a rate of 32 bulbs per hour. In how many hours will Jon and Sara have planted the same number of bulbs? How many bulbs will that be?

$x = \# \text{ hours}$

Jon = Sara

$$60 + 44x = 96 + 32x$$

$$\begin{array}{r} 60 + 44x = 96 \\ -32x \quad -32x \\ \hline 60 + 12x = 96 \\ -60 \quad -60 \\ \hline 12x = 36 \end{array}$$

$$\frac{12x}{12} = \frac{36}{12}$$

$60 + 44(3)$   
 $60 + 132$   
 $192$   
 $x = 3$

3 hours  
192 bulbs

16.) Four times Greg's age, decreased by 3 is equal to 3 times Greg's age increased by 7. How old is Greg?

$x = \text{Greg's age}$

$$4x - 3 = 3x + 7$$

$$\begin{array}{r} 4x - 3 = 7 \\ -3x \quad -3x \\ \hline x - 3 = 7 \\ +3 \quad +3 \\ \hline x = 10 \end{array}$$

10 years old

17.) Janine has job offers at two companies. One company offers a starting salary of \$28,000 with a raise of \$3000 each year. The other company offers a starting salary of \$36,000 with a raise of \$2000 each year. After how many years would Janine's salary be the same with both companies? What would be that salary?

$x = \# \text{ of years}$

Company 1 = Company 2

$$28,000 + 3,000x = 36,000 + 2,000x$$

$$\begin{array}{r} 28,000 + 3,000x = 36,000 + 2,000x \\ -2,000x \quad -2,000x \\ \hline 1000x + 28,000 = 36,000 \\ -28,000 \quad -28,000 \\ \hline 1000x = 8,000 \end{array}$$

$$\frac{1000x}{1000} = \frac{8,000}{1000}$$

$3000(8) + 28,000$   
 $24,000 + 28,000$   
 $x = 8$

8 years  
\$52,000

- 18.) Ian and his cousin both collect stamps. Ian has 56 stamps, and his cousin has 80 stamps. Both have recently joined different stamp-collecting clubs. Ian's club will send him 12 new stamps per month, and his cousin's club will send him 8 new stamps per month. After how many months will Ian and his cousin have the same number of stamps? How many stamps would that be?

$x = \# \text{ of months}$

$$\begin{array}{r} \text{Ian} = \text{cousin} \\ 56 + 12x = 80 + 8x \\ -8x \quad -8x \end{array}$$

$$\begin{array}{r} 4x + 56 = 80 \\ -56 \quad -56 \end{array}$$

$$\begin{array}{r} 4x = 24 \\ \underline{4} \quad \underline{4} \end{array}$$

$x = 6$

$$\begin{array}{r} 12(6) + 56 \\ 72 + 56 \\ 128 \end{array}$$

6 months  
128 stamps

Write an equation to represent each relationship. Then solve the equation.

- 18.) Three times the sum of a number and four is the same as eighteen more than the number.

$$3(x+4) = x+18$$

$$\begin{array}{r} 3x + 12 = x + 18 \\ -x \quad -x \end{array}$$

$$\begin{array}{r} 2x + 12 = 18 \\ -12 \quad -12 \end{array}$$

$$\begin{array}{r} 2x = 6 \\ \underline{2} \quad \underline{2} \end{array}$$

$x = 3$

3

- 19.) Two less than 2 times a number is the same as the number plus 64.

$$\begin{array}{r} 2x - 2 = x + 64 \\ -x \quad -x \end{array}$$

$$\begin{array}{r} x - 2 = 64 \\ +2 \quad +2 \end{array}$$

$x = 66$

66