

## 1.4

Wednesday, September 07, 2011  
6:50 AM

## Write Equations and Inequalities

Let's Review...

Translate the verbal phrase into an expression...

a) 7 less than a number

$$x - 7$$

b) The sum of a number and 12

$$x + 12$$

~~Translate the following algebraic expressions into verbal phrases...~~

c) four times the quantity of the sum of a number and 3

$$4(x + 3)$$

d) 4 times the difference of 6 and a number

$$4(6 - x)$$

What turns an expression into an equation or an inequality? One or more of the following...

=	<	>	≤	≥
equal	less than	greater than	less than or equal	greater than or equal

An expression has no equal or inequality symbol

An equation is formed when an equal symbol is inserted between two expressions.

An inequality is formed when an inequality symbol is inserted between two expressions.

★ For 1-5, write an equation or inequality. ★

1) The difference of twice a number  $k$  and 8 is 12.

$$2k - 8 = 12$$

2) The product of 6 and a number  $n$  is at least 24.

$$6n \geq 24$$

3) The quotient of a number  $p$  and 12 is at most 30.

$$p/12 \leq 30$$

4) The cube of the product of a number and 7 is less than 14.

$$(7n)^3 < 14$$

5) A number  $y$  is no less than 5 and no more than 13

$$y \geq 5 \text{ and } y \leq 13$$

$$5 \leq y \leq 13$$

— '  $5 \leq y \leq 13$

You try a few!

- a. The quotient of 3 and a number is no less than 24

$$\frac{3}{x} \geq 24$$

- b. The product of 6 and a number  $x$  is greater than 3 and no more than 18.

$$3 < 6x \leq 18$$

$$6x > 3 \text{ and } 6x \leq 18$$

- c. The sum of a number  $y$  and 12 is no less than 22 but fewer than 28.

$$22 \leq y + 12 < 28$$

$$y + 12 \geq 22 \text{ and } y + 12 < 28$$

★ For 6-9, check whether the given number is a solution. ★

6)  $4a - 5 \leq 10; 5$

7)  $\frac{b}{3} + 4 = 7; 9$

8)  $2f - 3 \geq 8; 5$

9)  $2x + 3 = 11; 5$

$$\begin{aligned} 2(5) + 3 &= 11 \\ 10 + 3 &= 11 \\ 13 &= 11 \end{aligned}$$

No

Can you problem solve?



- 10) You are buying a new printer and a new scanner for your computer, and you cannot spend over \$150. The printer you want costs \$80. Write an inequality that describes the most that you can spend on the scanner and still stay within your budget. If you buy a scanner that costs \$75, will you remain within your budget?



- 11) You and three of your friends are going to race go-carts. The last time you went you had a coupon for \$3 off each admission and paid \$48 for the 4 admissions. What was the total price for all four of you without the coupon? If you split the cost evenly, how much would each of you pay?

