

1.1 Translating Expressions and Equations

Translating verbal phrases

Look for words that indicate operations!!

Operation	Verbal Phrases	Expression
Addition: Sum, <u>plus</u> , total, <u>more than</u> , <u>increased by</u>	The sum of 2 and a number x A number n plus 7	$2 + x$ $n + 7$
Subtraction: Difference, <u>less than</u> , minus, <u>decreased by</u>	The difference of a number n and 6 A number y minus 5	$n - 6$ $y - 5$
Multiplication: Product, <u>times</u> , of, <u>multiplied by</u>	12 times a number y $\frac{1}{3}$ of a number x	$12y$ $\frac{1}{3}x$
Division: Quotient, <u>divided by</u> , divided into	The quotient of a number k and 2	$\frac{k}{2}$

* less than = flip the order

Order is important!!!!

4 less than x
 $x - 4$

"The difference of a number n and 6" is written $n - 6$, NOT $6 - n$!!!

"The quotient of a number k and 2" is written $\frac{k}{2}$, NOT $\frac{2}{k}$!!!

Ex 1. Write the expression

4 less than the quantity 6 times a number n

3 times the sum of 7 and a number y

$$\frac{6n - 4}{3(7 + y)}$$

$$7 + y$$

The difference of 22 and the square of a number m

$$\frac{22 - m^2}{\quad}$$

The quotient when the quantity 10 plus a number x is divided by 2

$$\frac{10 + x}{2}$$

Symbol	Meaning	Associated Words
=	is equal to	The same as
<	is less than	Fewer than
≤	is less than or equal to	At most, no more than
>	is greater than	More than
≥	is greater than or equal to	At least, no less than

Ex2.

The difference of twice a number k and 8 is 12

$$2k - 8 = 12$$

The product of 6 and a number n is at least 24

$$6n \geq 24$$

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

The quotient of a number p and 12 is at least 30

$$\frac{p}{12} \geq 30$$

How do you check whether a number is a solution of an equation or inequality?

Ex3. Check whether 3 is a solution of the equation or inequality.

a.) $8 - 2x = 2$

$$8 - 2(3) = 2$$

$$8 - 6 = 2$$

$$2 = 2$$

A: yes

b.) $2z + 5 > 12$

$$2(3) + 5 > 12$$

$$6 + 5 > 12$$

$$11 > 12$$

A: no

c.) $5 + 3n \leq 20$

A: _____

Homework: