Warm-up. Evaluate each of these.

1. $2[54 \div (4^2 + 2)]$

$2[54 \div 18]$ ^{18}

$2(3) = 6$

2. $\dfrac{5x}{x + 2}$ when $x = 3$

$\dfrac{5(3)}{3+2} = \dfrac{15}{5}$ 3

2

Aug 10-3:48 PM

Section 1.2/1.3 Write Expressions, Equations, and Inequalities

Goal

Translate verbal phrases into expressions, equations, and inequalities

Aug 10-3:48 PM

To translate verbal phrases into an expression, look for words that indicate **mathematical operations.**

Mathematical Operation	Words that indicate each mathematical operation
Addition $+$	Sum, total, plus, more than, increased by, added to, …
Subtraction	Difference, less than, decreased by, minus, subtracted from, …
Multiplication	Times, product, multiply by, of, …
Division	Quotient, divided by, divided into, …
Power	Square of, Cube of, …

Aug 10-3:48 PM

Example 1: Translate each verbal phrase into expressions.

a. The sum of 6 and x

$6+x$ $x+6$

b. n decreased by 10

$n-10$

c. 7 times z

$7z$

d. The quotient of n and 15

$n \div 15$ $\dfrac{n}{15}$

e. The square of x

x^2

Aug 10-3:48 PM

Note: Order is extremely important when writing **SUBTRACTION** and **DIVISION** expressions.
*When the phrase "less than" is used, you need to switch the order of what you would normally think how to write it.
For example, 10 less than x is written x – 10

Example 2: Translate each verbal phrase into expressions.
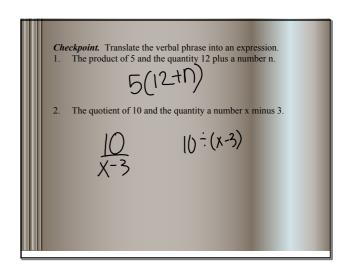
a. 6 less than the quantity 8 times a number x.

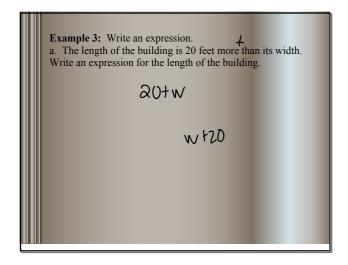$(8x) - 6$

b. 2 times the sum of 5 and a number a

$2(5+a)$

c. The difference of 17 and the cube of a number n

$17 - n^3$

Aug 10-3:48 PM

Checkpoint. Translate the verbal phrase into an expression.

1. The product of 5 and the quantity 12 plus a number n.

$5(12+n)$

2. The quotient of 10 and the quantity a number x minus 3.

$\dfrac{10}{x-3}$ $10 \div (x-3)$

Aug 10-3:48 PM

1

Example 3: Write an expression.
a. The length of the building is 20 feet more than its width. Write an expression for the length of the building.

$$20 + w$$

$$w + 20$$

Aug 10-3:48 PM

Open Sentence: A mathematical statement that contains two algebraic expressions and a symbol that compares them.

Equation: An open sentence that contains the symbol =

Inequality: An open sentence that contains one of the inequality symbols.

$<$ $>$ $\leq$ $\geq$

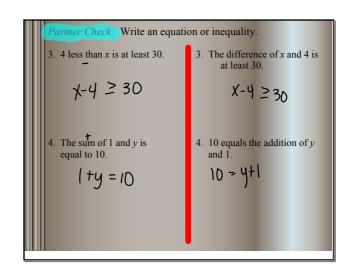| Symbol/Meaning	Associated Words
= (is equal to)	The same as, …
< (is less than)	Fewer than, …
≤ (is less than or equal to)	At most, no more than, …
>(is greater than)	More than, …
≥ (is greater than or equal to)	At least, no less than, …

Aug 10-3:48 PM

Example 4: Translate each verbal phrase into an equation **or** inequality statement.

a. The difference of twice a number p and six is 18.

$$2p - 6 = 18$$

b. The product of 4 and a number m is at least 16.

$$4m \geq 16$$

~~c. A number n is no less than 7 and no more than 15~~

Aug 10-3:48 PM

Partner Check: Write an equation or inequality.

3. 4 less than x is at least 30.

$$x - 4 \geq 30$$

3. The difference of x and 4 is at least 30.

$$x - 4 \geq 30$$

4. The sum of 1 and y is equal to 10.

$$1 + y = 10$$

4. 10 equals the addition of y and 1.

$$10 = y + 1$$

Aug 10-3:48 PM

2