

Name: _____

Date: Aug 22

Hour: 6th

Unit 1 Day 4: Expressions and Equations

Focus Question: How do I work with equations?

A. Vocabulary

Look at the table of expressions and equations.

Expression	Equation
$3x + 7$	$6x + 4 = 10$
$2x + 3x + 9 - 4$	$5x - 2x = 10x + 5$
$2x - 6 + 3$	$4(x - 1) = 2(x + 2)$
$3 - 2x + 4 + 4x^2$	$2x^2 + 3 = 21$

1. What is the difference between an expression and an equation?

the equal sign

2. What do you think is the definition of **equation**?

3. An **equation** is 2 expressions set equal

We do not say "simplify" an equation. When we see an equation, our goal is usually to **solve** it.

This means that we *simplify each expression as much as possible* and then **isolate the variable** we are told to solve for.

4. What does isolate mean?

to get the letter by itself

5. What do you think it means to be a **solution to an equation**?

answer

6. Fill in the blanks with what the teacher says: A **solution to an equation** is a

value (#)

that when substituted makes the equation true.

B. Checking Solutions:

George was given the problem $17 - 2x = 3$. He says the solution is $x = 14$.

How would you show him that he is wrong?

How your math teacher would show he is wrong.

$$17 - 2(14) \neq 3$$

$$-11 = 3$$

This is not true

so $x = 14$

is not correct.

C. Substituting into Equations

1. The height of a model rocket launched from the ground can be modeled by the equation $h = -16t^2 + 96t$ where h is the height in feet and t is the time in seconds. How high was the model rocket after 3 seconds?

* Steps to remember:

- 1) Copy the formula correctly
- 2) Substitute the values in the correct places using ()
- ✓ 3) Simplify each expression
- ✗ 4) Determine if a variable is isolated
- 5) Check your work with a calculator

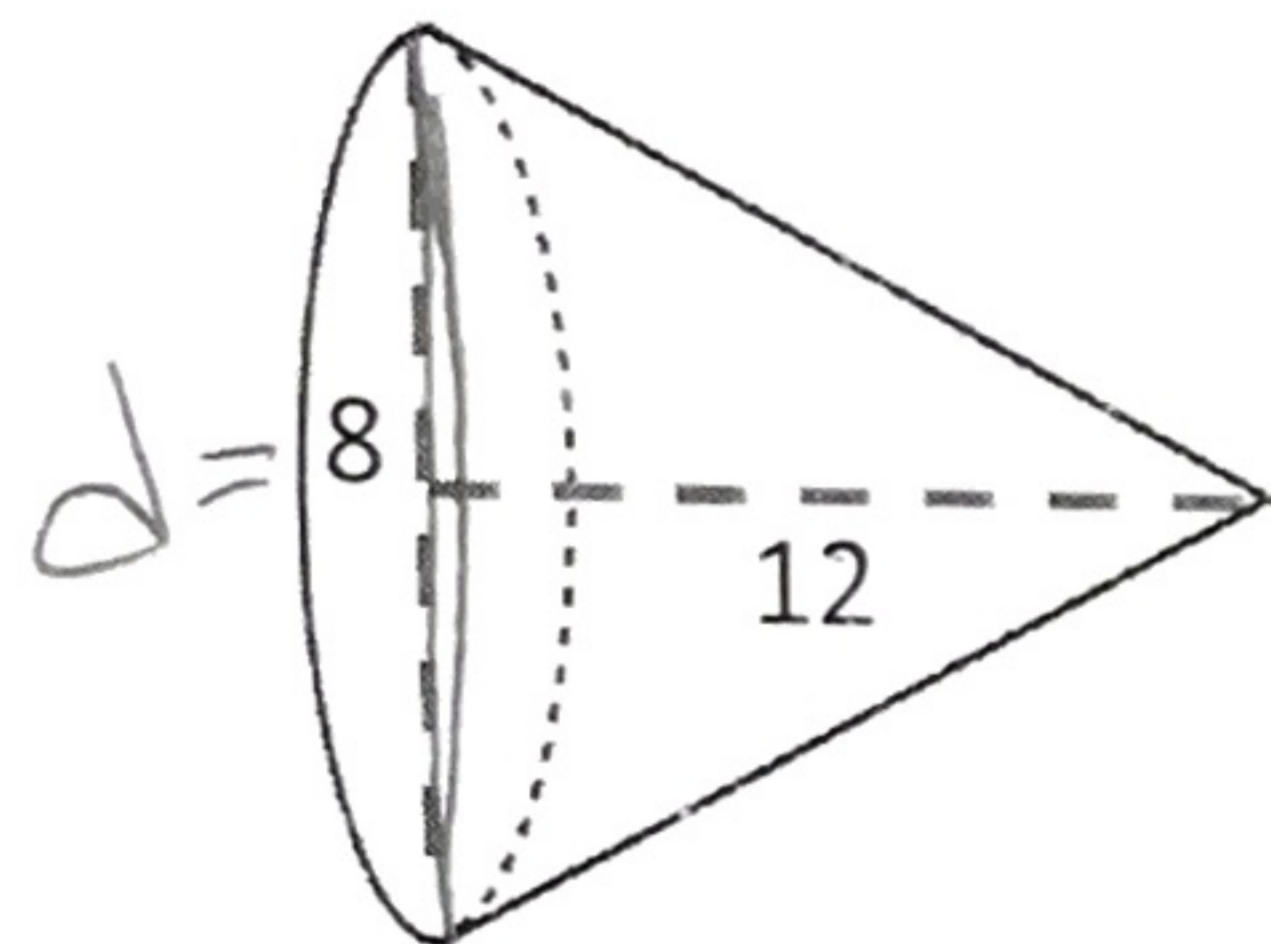
$$h = -16(3)^2 + 96(3) \quad t = 3$$

$$h = 144$$

144 feet

2. The volume of a cone is given by the formula $V = \frac{\pi r^2 h}{3}$ where V is the volume in cubic units, r is the radius, and h is the height. What is the volume of each cone below?

a.

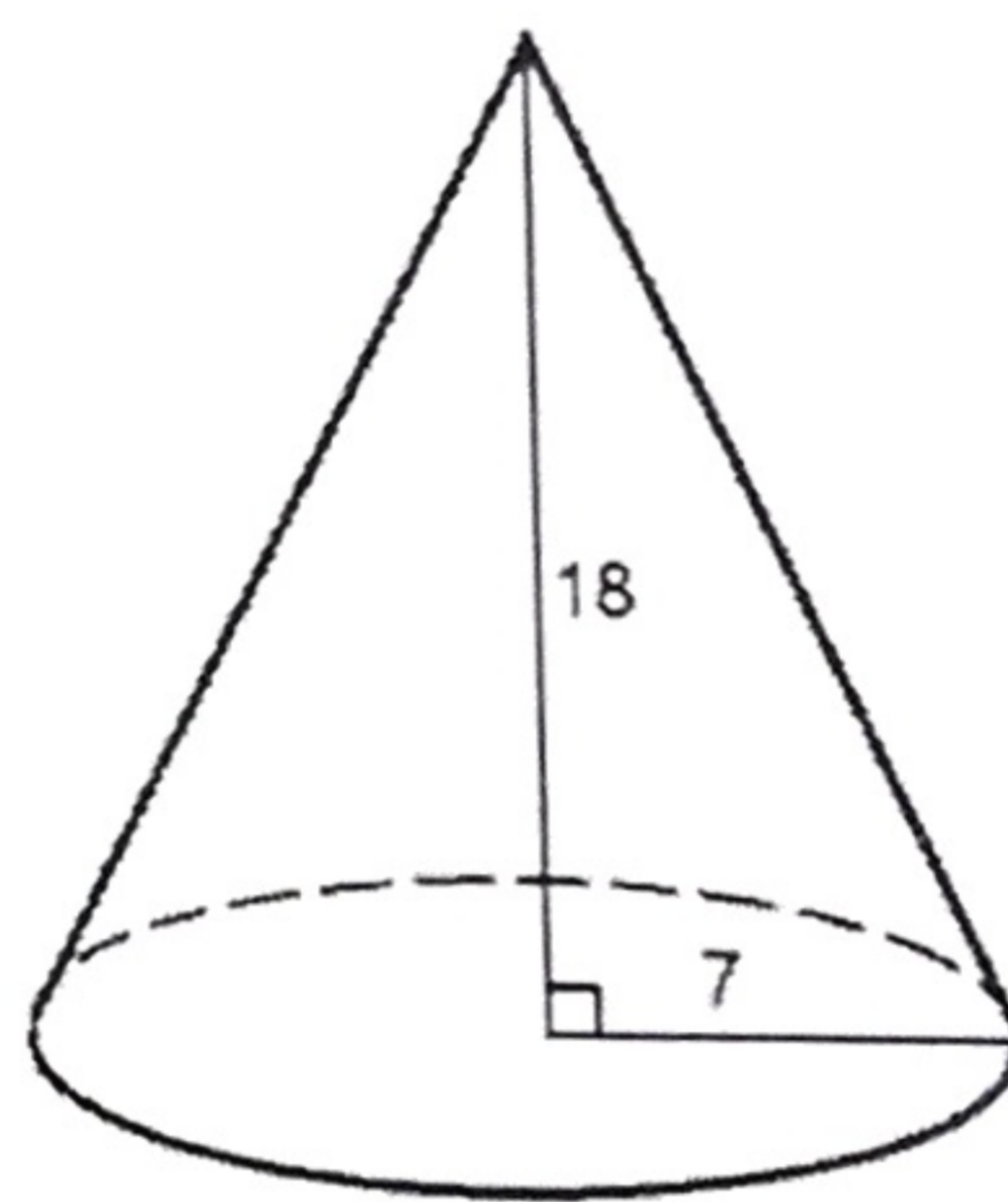


$$\pi = 3.14$$

$$h = 12$$

$$r = 4$$

b.



$$V = \frac{(3.14)(4)^2(12)}{3}$$

$$V = 200.96$$

200.96
cubic units