# BRING YOUR TEXTBOOK!!!! 

Warmup 10/ (\# of elaws a werewolf has • (\# of fingers Frankenstein has on one hand -2 fingers that fell off) $+\#$ of eyes a cyelops has)

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1. $-8-11$
2. $-23+7$
3. $\frac{3}{5} \cdot 35$
4. $5 \div \frac{2}{5}$
5. How many triangles are there? Triangles can be any size.


## New Unit: Solving Equations

- I have had a lot of struggling students really improve on this unit!
- What we just got done doing:
- Bob has $\$ 50$. He earns $\$ 8$ per hour. Write an equation to show how much he has after " $x$ " hours.

$$
y=8 x+50
$$

- What we will be doing next:
- Bob has $\$ 50$. He earns $\$ 8$ per hour. How long will it take him to have \$170?

$$
170=8 x+50
$$

## Pretest: Solving Equations

- Our next unit is on solving equations.
- I don't want to spend too much time teaching you stuff you already know. I would rather start where you are and go deeper.
- This pretest will help me know where your skills are at right now!
- If you don't know one, that is okay, but you should still try it!!!
- Please show your work.
- THERE IS A TIME LIMIT. You may not get enough time to do them all!!!


## Let's start at the beginning...

- One-step equations
- Focusing STRONGLY on equations with fractions


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## 1 and 2-Step Equations

Objective:

- Solve 1 and 2 step equations
- Know how to check a solution


## First, let's review normal 1-step equations...

$$
\text { 1. } \begin{array}{r}
x+4=11 \\
-4 \quad-4 \\
x=7
\end{array}
$$



## First, let's review normal 1-step equations...

$$
\text { 1. } \begin{aligned}
\frac{3 x}{3} & =\frac{12}{3} \\
1 x & =4 \\
x & =4
\end{aligned}
$$



## Equations with a fraction?

$$
\begin{aligned}
\frac{2}{3} x=\frac{6}{\frac{2}{3}} & 6 \div \frac{2}{3} \\
1 x=? & =6 \cdot \frac{3}{2} \\
x=9 & =\frac{18}{2} \\
x & =9
\end{aligned}
$$

## CHECK

$\cdot \frac{2}{3} x=6$
$\cdot \frac{2}{3}(9)=6$ ?
$\cdot \frac{18}{3}=6$
$\cdot 6=6$

- It works!


## Faster way:

When there's a fraction in front of the variable...

$$
\begin{gathered}
\frac{2}{3} x=6 \\
\frac{3}{2} \cdot \frac{2}{3} x=6 \cdot \frac{3}{2}
\end{gathered}
$$

$$
1 x=9
$$

$$
x=9
$$

## Mental Math strategies...

$\cdot \frac{2}{3} x=6$

- " $2 / 3$ of something is 6 "

- If $2 / 3$ is 6 , then $1 / 3$ is 3
- The whole thing must be 9!


## One-Step: Examples

1. $\frac{1}{6} x=12$

$$
x=72
$$

$$
\text { 2. }-\frac{4}{3} x=20 \quad x=-15
$$

$$
\text { 3. } \frac{15}{8}=\frac{5}{2} x \quad x=\frac{3}{4}
$$

Mixed Numbers...

$$
\begin{aligned}
1 \frac{5}{6} x & =16 \frac{1}{2} \\
\frac{11}{6} x & =\frac{33}{2} \\
\frac{6}{11} \cdot \frac{11}{6} x & =\frac{33}{2} \cdot \frac{6}{11} \\
x & =9
\end{aligned}
$$

## EQUATIONS WITH FRACTIONS: RULES

- "If there's a fraction in front of the variable, you gotta multiply by the reciprocal."
- THIS WORKS BECAUSE: You are trying to get 1x, and any fraction times its reciprocal is 1 !!!
- Change mixed numbers into improper fractions so they are easier to deal with.

