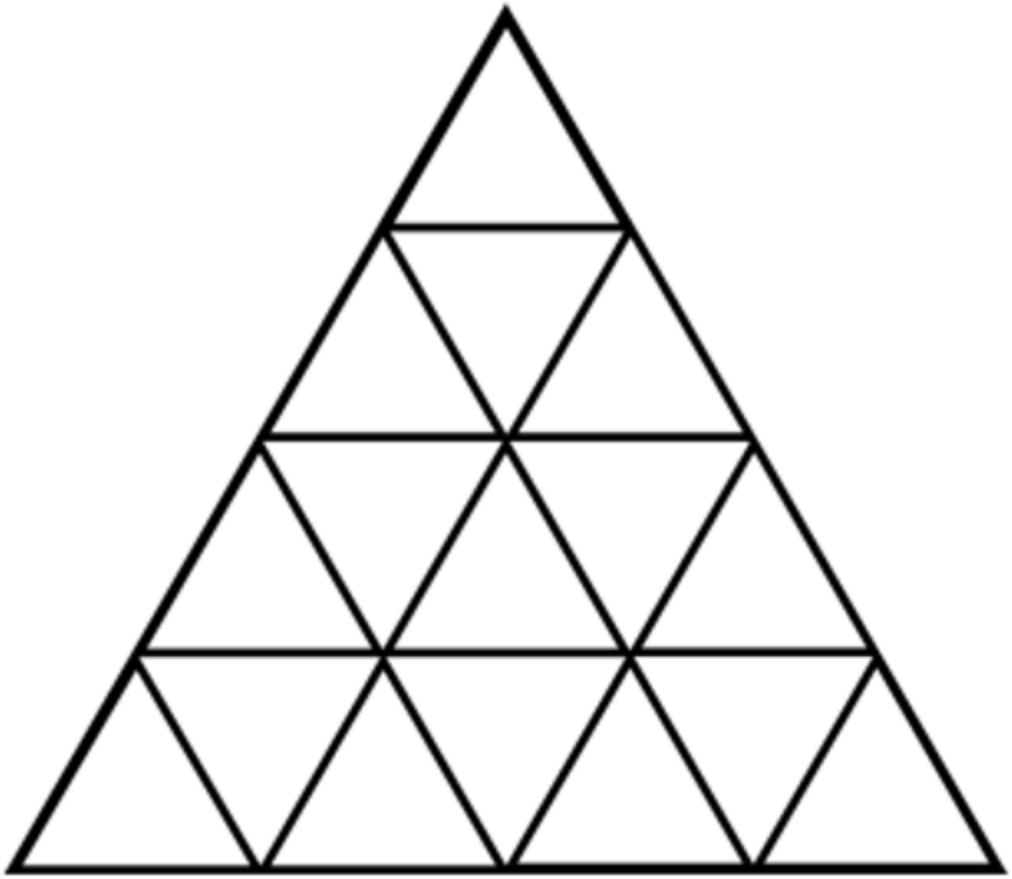
Warmup 8/(# of letters in "IT'S FRIDAYYYYYYYY!!!") Created by Mr. Lischwe

How many triangles are in this picture?



Warmups…

NOTE 1: If you are ever absent, please put "Absent" for that day. That way, I won't mark you off for not having it.

NOTE 2: Each week will be worth 5 points; 1 point for each day. You must do each problem to get the point.

I will add up all these points and put in your "Warmup score" at the end of the 9 weeks.

Go over the homework

- NOTE: since this is such a long worksheet, I will let 1-4 mistakes be a 93 instead of the normal 1-2.

Add to your table of contents…

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Equations with No Solution or Infinite Solutions

Objective:

-Solve equations that have no solution or infinite solutions

Equations with infinite solutions

- In the equation **2x = x + 3**, there is only one solution: 3, because 3 is the only number for x that would make both sides equal.

- Try to come up with an equation in which **every number** could work for x.

Equations with no solution

Can you think of an equation has **no** solutions? (No numbers could work for x?)

What value of x makes the equation true?

$x + 5 = x + 10$ — Nothing!

$x + 10 = 10 + x$ — Any number!

$x + x = 2x + 0$ — Any number!

$2x = 3x$ — $x = 0$

$x - 10 = x$ — Nothing!

$2x + 6 = 2(x + 3)$ — Any number!

What value of x makes the equation true?

$$x + 5 = x + 10$$

No Solution:

- **Something like: $2x + 5 = 2x + 6$**

$$5 = 6$$

- **Means it's an impossible equation – NO NUMBERS will work**

What happens with these?

- $4x = 5x$ vs. $4 = 5$

Left: x can equal zero
Right: no solution!

- $0x = 8$ vs. $8x = 0$

Do you see why the one on the left is impossible, but the one on the right IS possible?

Dividing by zero…

- $\frac{0}{anything} = 0$ **(so x = 0)**

- $\frac{anything}{0} = undefined$

(So no solution)

What value of x makes the equation true?

$$2x + 6 = 2(x + 3)$$

$$x + 10 = 10 + x$$

Infinite Solutions

- If you ever have the exact same thing on both sides
  - $5 = 5$
  - $2x - 8 = 2x - 8$
  - Etc.
- Means EVERY NUMBER will work

Important to realize:

- If the variables "go away" on BOTH SIDES of the equation, it will either have no solution or infinite solutions.

1 solution, zero solutions or infinite solutions?

1. $5(x-3)+10=2x+3x-5$

$5x-15+10=5x-5$

$5x-5=5x-5$

INFINITE

2. $12=3(x+5)-3x$

$12=3x+5-3x$

$12=5$

NO SOLUTION

3. $x+3+3x+5=2x-4+12+2x$

$4x+8=4x+8$

INFINITE

4. $2(x+3)=-2x+6$

$2x+6=-2x+6$

$+2x \quad +2x$

$4x+6=6$

$-6 \quad -6$

$\frac{4x}{4}=\frac{0}{4}$

$x=0$

ONE SOLUTION $(x=0)$

COMMON MISTAKE

- What is going to happen here?

$$5x + 9 = 5x$$

- If you get rid of the variables on BOTH SIDES, it is either going to be "No solution" or "Infinite solutions".
- **Don't just leave it as "9 = 0". You MUST write infinite solutions or no solution.**

Solve these equations.

1. $4x + 3 = x + 18$ — $x = 5$
2. $4x + 3 = 4x + 18$ — No solution
3. $7x + 10 = 2x + 10$ — $x = 0$
4. $3(x - 4) = x - 12 + 2x$ — Infinite Solutions

Solve $10 - 5x + 1 = 7x + 11 - 12x$.

$11 - 5x = 11 - 5x$

Solve $12x - 3 + x = 5x - 4 + 8x$.

$13x - 3 = 13x - 4$

$-13x \qquad -13x$

$-3 = -4$

No Solution

ONCE AGAIN…

IMPORTANT

- **"7 = 8" is NOT AN ANSWER.**
- **You MUST write "No solution"**

Homework: "Special" Equations Worksheet