Convince Me That

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#ConvinceMeThat

Notes...



- Giving students the answer allows them to focus on different aspects of the problem (how, why, process, ...)
- For more sophisticated equations use either <u>CodeCogs</u> or <u>Equatio</u>.
 - CodeCogs Settings: gif Latin Modern (12pt) Large 200 Transparent •
- Don't forget to include the grade-level on your slide.
- Click here for graphs, clocks, money, number lines...
- Use 📐 to indicate grade level.



PRINTABLE TEMPLATE

Convince Me That	Name:	
		Date:
Jse the box below for any drawings, dia	agrams, or sketches needed. Labe	el them "Figure 1", "Figure 2", etc.
Use the lines below for any written	explanation. Reference your dra	wings by their name "Figure 1", etc.





3+5=8



1 ten is the same as 10 ones.



all squares are rectangles but not all rectangles are squares.



12-6=6



two weeks is greater than 10 days.



a triangle has 3 vertices.



a rectangle has 4 vertices and 4 edges.



8 is greater than 7.



4 can be greater than 5.



8=8



three weeks is greater than 20 days.



2 hundreds 9 tens and 10 ones equals 300



23-9=14



113 is less than 13 tens



5×4=20



6 x 2 is the same as 2 x 6.



38÷4≠9



Convince me that... $\frac{1}{2} = \frac{3}{6}$



Convince me that... $\frac{3}{4} = \frac{6}{8}$



the perimeter of the shape below is 14 units.





the area of the shape below is 9 square units.





the areas of the rectangles below are different but the perimeters are the same.





3/4 is not always greater than 1/2



1/4 is not always equivalent to 2/8.



a square is a parallelogram, a rectangle and a rhombus.



there is a difference between:

A. Maddie and Alex baked 48 cookies for the bake sale and packaged them in groups of 8 per bag. How many bags did they pack? B. If 48 cookies are divided equally among 8 students, how many cookies will each student receive?

 $\frac{1}{3} < \frac{2}{3}$



Convince me that... $\frac{1}{3} > \frac{1}{4}$



Convince me that... $\frac{1}{3} < \frac{3}{4}$



Convince me that... $\frac{4}{7} < \frac{5}{8}$



the product of two odd numbers will always be odd.



a number with fewer digits can be larger than a number with more digits.


Convince me that... $\frac{1}{2} + \frac{1}{2} = \frac{2}{2}$



$\frac{2}{4} + \frac{1}{4} = \frac{3}{4}$



Convince me that... $\frac{1}{6} + \frac{2}{3} = \frac{5}{6}$



 $\frac{1}{2} + \frac{1}{3} \neq \frac{2}{5}$



$\frac{1}{5} + \frac{2}{5} \neq \frac{3}{10}$



Convince me that...

$15 \times 8 = (15 \times 2) \times \left(8 \times \frac{1}{2}\right)$



the product of an odd and even number will always be even.



the product of two even numbers will always be even.



1/2 of a pizza is equivalent to 4/8 of pizza.



Convince me that... 4000 - 2749 = 3999 - 2748



2/3 of a sandwich is equivalent to 4/6 of sandwich.



the shaded regions below are equivalent.





$\frac{1}{3} \times 2 \neq \frac{1}{3} \times \frac{2}{2}$















Convince me that... $\frac{2}{3} * \frac{2}{5} = \frac{4}{15}$



we don't need to convert to "improper" fractions in order to multiply mixed numbers.



if we increase the 3 the sum will decrease.

 $\frac{1}{3} + \frac{2}{7}$



a trapezoid is not a parallelogram.



a circle is not a polygon.



a square is a rhombus and a rectangle.



a rectangle is a parallelogram, but a parallelogram doesn't have to be a rectangle.



mode can be a better measure of central tendency than mean or median.



you can use the distributive property to find the total cost of \$20 t-shirt with 6% sales tax.









A = bh





 $A = \frac{1}{2}h(b_1 + b_2)$





5-7=-2



cereal box B is the better buy.





\$3.79 ea.

\$4.29 ea.

Rice Krispies Cereal, Toasted Rice (12 oz) Rice Krispies Cereal, Toasted Rice (18 oz)



 $4\pi r^2$ makes sense in relationship to finding the surface area of a sphere.



25% of 40 is the same at 50% of 20.



-5+3=-2



 $\pi \approx 3.14$



 $a^5 * a^3 = a^8$



 $4^{-3} * 4^5 = 4^2$


Convince me that... $(4m^3)^2 = 16m^6$







$$\left(\frac{2x^3}{x^5}\right)^3 = \frac{8x^9}{x^{15}}$$



 $-3^2 \neq (-3)^2$



the $\sqrt{(25)}$ is 5.



the √(17) isn't 4.



$\sqrt[3]{27} = 3$



the 50th term in the pattern below is 152.

2, 5, 8, 11, 14, ...



Convince me that... $3^8 = 9^4$







Convince me that... $(3+6)^2 \neq 3^2 + 6^2$



The intersecting point of any two graphs (equations) is a solution to all the equations.



there is a value for x that makes this true $(x+3)^2 = x^2 + 9$



 $a > b, then \ a^2 \not> b^2$



Convince me that... $(4+6)^2 = 8^2 + 6^2$



Convince me that... $(3+2)^2 = 3^2 + 2(6) + 2^2$



Convince me that... $(a+b)^2 = a^2 + 2ab + b^2$



the area of a circle is related to the area of a rectangle.



you cannot make a triangle with any three side lengths.



the side lengths 3,7, and 9 do not make the sides of a right triangle



the point (0,34) is a solution to the inequality y>531x+33.



having the dependent variable on the y-axis of a scatter plot is different than having it on the x-axis.



drawing a line of best fit by splitting the points in half (half above, half below) is **not** the best method.



$x=-\frac{1}{2}$ is a solution to the equation 2x+4=3.



(4,1) is a solution to the system of inequalities below.

$$y > -4x - 5$$
$$y \le -\frac{1}{2}x + 3$$



(1,2) is a solution to one, but not both of the inequalities below.

 $\begin{array}{l} y \geq 2x+2\\ y < -\frac{1}{4}x+3 \end{array}$



An irrational number times an irrational number is not always irrational.



$x^{2} + 2x + 1 = (x + 1)(x + 1)$



The line that passes through (-1, 4) and (2, 7) is parallel to the line 2x + 2y = 16



the functions are inverses.

$$f(x) = -1 - \frac{1}{5}x$$
$$g(x) = -5x - 5$$



the functions are inverses.

$$f(n) = \frac{-16+n}{4}$$
$$g(n) = 4n+16$$



$tan\theta + cot\theta = csc\theta sec\theta$



$sin\theta(csc\theta - sin\theta) = cos2\theta$



Convince me that... $cos\theta cot\theta - sec\theta cot\theta = -sin\theta$










Convince me that...

The output of the following code segment is "Over 3".

```
int num = 5;
```

```
if (num < 3) {
    System.out.println("Under 3");
}
else if (num == 3) {
    System.out.println("Equals 3");
}
else if (num >= 4) {
    System.out.println("Over 3");
}
```

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