Agenda for Math 005.003 (30 March 2020, 11-11:50 am):

1. (≈10 min) Discuss the structure of the class.
2. (≈30 min) Work on WS 1 in breakout rooms.
3. (≈10 min) Discuss expectations for homework.

$$\frac{c}{a} + \frac{c}{b} = \frac{c}{a+b}$$

False because ~~$\frac{c}{a} + \frac{c}{b} = \frac{bc+ac}{ab} \stackrel{?}{=} \frac{c}{a+b}$~~

False because if $a = 1$, $b = 1$, $c = 3$, then

$$\frac{c}{a} + \frac{c}{b} = \frac{3}{1} + \frac{3}{1} = 3 + 3 = 6$$

$$\frac{c}{a+b} = \frac{3}{1+1} = \frac{3}{2} \neq$$

$$\sqrt{x^2+9} = x + 3$$

$x = 1 \implies \sqrt{1^2+9} = \sqrt{10} = 4$

1) True or false: for all real numbers a, b, and c,

$$\frac{c}{a} + \frac{c}{b} = \frac{c}{a+b}.$$

Solution: This statement is false. Consider the counter-example $a = b = c = 1$.

$$\frac{c}{a} + \frac{c}{b} = \frac{1}{1} + \frac{1}{1} = 2,$$

but

$$\frac{c}{a+b} = \frac{1}{1+1} = \frac{1}{2}.$$

Since $2 \neq \frac{1}{2}$, the statement is false. ∎