7th grade example problems I can't solve

1) ratio - fill in table if not a whole number ratio

2	2/3
5	?

Issue : I'm not sure how to deal with fractions in ratios.

2) use ratio to calculate parts from total

The ratio of Duke to UNC fans is 2:5. There are 77 fans total. How many Duke fans and how many UNC fans are there?

Issue: I know I can multiply my ratio for example 2:5 → 20:50 but I don't see how to use 77.

3) double ratio problem

If the ratio of girls to boys is 3:5 and the ratio of boys to teachers is 7:2, what is the ratio of girls to teachers.

Issue : I don't know how to connect the two ratios.

4)   constant of proportionality from table

What is the constant of proportionality of this table?

2	3
4	6
6	9

Issue : I don't how to calculate constant of proportionality.
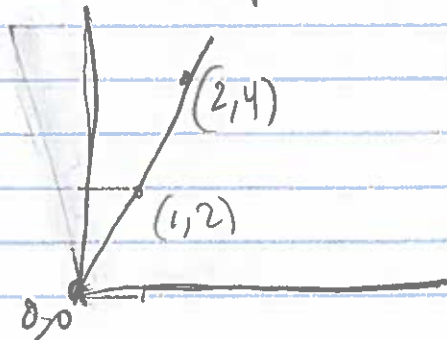
5) constant of proportionality when decimals are involved

What is the constant of proportionality in this table?

3	4.5
9	13.5
11	16.5

Issue : I don't know what to do it there are decimals
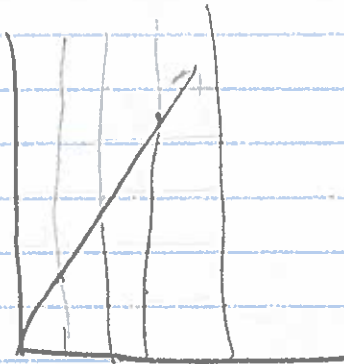
6)   constant of proportionality from graph

What is the constant of proportionality in this graph?

(2,4)

(1,2)

0,0

Issue :   I'm not sure if I calculate
1 ÷ 2 or 2 ÷ 1

7) constant of proportionality — points not labeled on graph?

What is the constant of proportionality of this graph?

Issue: No points are labeled. I don't know what to do.

8) unit rate problems — fractions

I can drive $\dfrac{\frac{1}{2}\text{mile}}{\frac{1}{3}\text{gallon of gas}}$, how many miles can I go on 1 gallon.

Issue: I know I can use division but I forgot how to divide fractions

9) unit rate with mixed numbers.

A bus drive $8\frac{2}{3}$ miles on $1\frac{1}{3}$ gallon of gas. What is its miles per gallon

Issue: I don't know how to divide mixed numbers

10)   reversing a ratio.

If you can drive 20 miles on 2 gallons of gas, how much gas does it take to drive one mile?

Issue: I know how to calculate miles per gallon but not gallons per mile.