2-1 Unit Rates with complex Fractions

Complex Fractions

A fraction within a fraction!

Ex1) $\dfrac{\frac{4}{5}}{\frac{2}{3}}$

$\frac{4}{5} \div \frac{2}{3} = \frac{6}{5} = 1\frac{1}{5}$

$\frac{4}{5} \cdot \frac{3}{2} = \frac{12}{10}$

Ex2) $\dfrac{1\frac{1}{2}}{\frac{4}{5}} = 1\frac{1}{2} \div \frac{4}{5}$

$\frac{3}{2} \div \frac{4}{5}$

$\frac{3}{2} \cdot \frac{5}{4} = \frac{15}{8}$

$1\frac{7}{8}$

Unit Rates!

If I drive 300 miles in 4 hours, what is my rate of speed (miles per hour)?

$300 \text{mil} / 4 \text{hrs} = 75 \text{mil/hr}.$

If I picked 5 1/2 pounds of apples in 3/4 hour, how many pounds per hour did I pick?

$5\frac{1}{2} \text{ lbs} / \frac{3}{4} \text{ hr}$

$\frac{5\frac{1}{2}}{\frac{3}{4}} = 5\frac{1}{2} \div \frac{3}{4}$

$\frac{11}{2} \div \frac{3}{4}$

$\frac{11}{2} \cdot \frac{4}{3} = \frac{44}{6}$

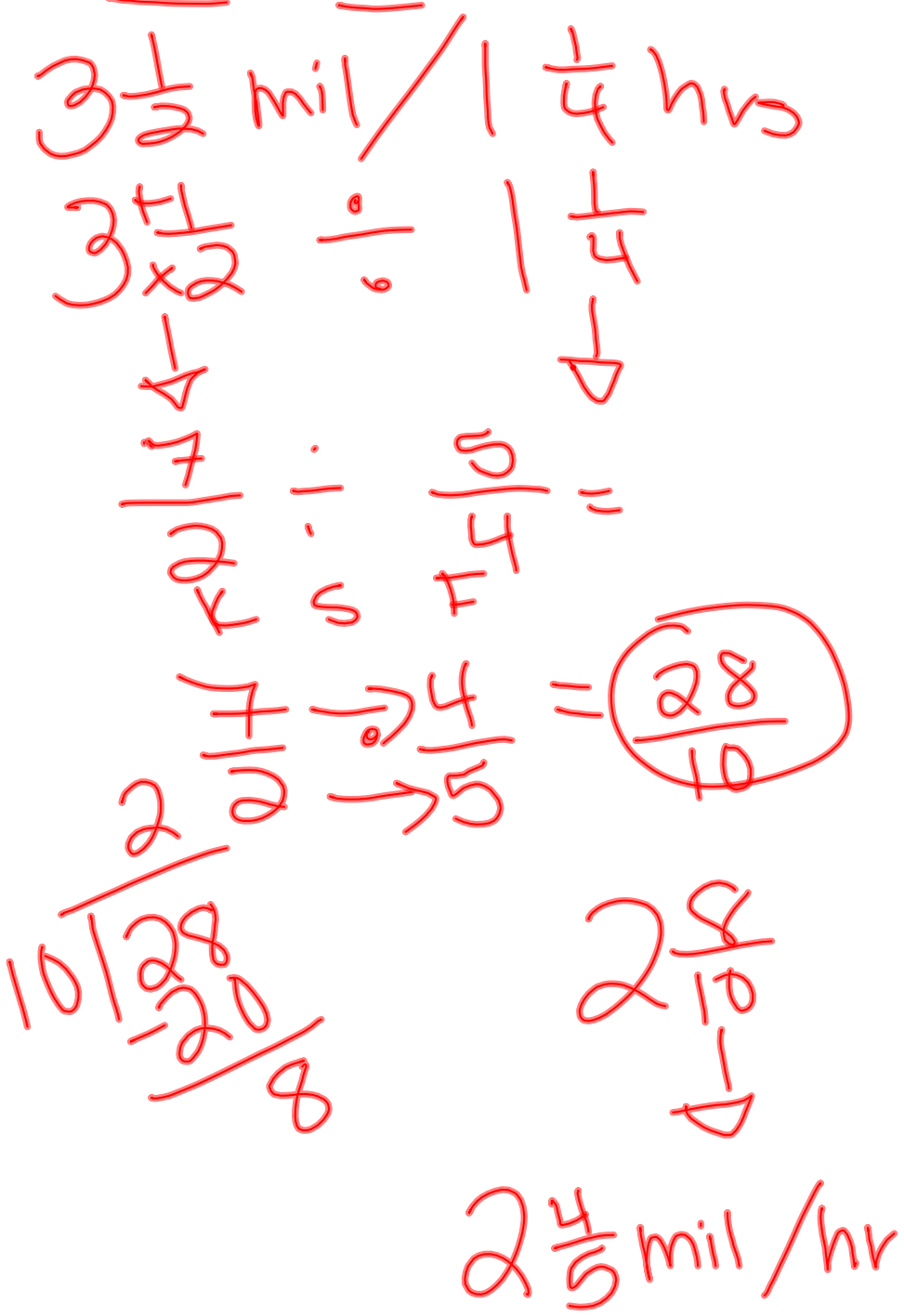
$7\frac{2}{6}$

$7\frac{1}{3} \text{ lbs/hr}$

$6\overline{)44}$ R 2

Team:

Lexi walks 3 1/2 miles in 1 1/4 hours. How many miles per hour does she walk?



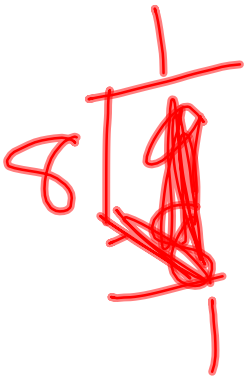
Pair:

I can read 3/4 of a page in 2/3 of a minute.
How many pages per minute can I read?

$\frac{3}{4} \div \frac{2}{3}$

KSF

$\frac{3}{4} \cdot \frac{3}{2} = \frac{9}{8} =$



$1\frac{1}{8}$ pages/min

p/amin

Solo:

I use 4/5 cup of tomato sauce when I cut my recipe in 1/2. How many cups per recipe are there?

$\frac{4}{5}$ cup / $\frac{1}{2}$ recipe

$\frac{4}{5} \div \frac{1}{2}$

KSF

$\frac{4}{5} \cdot \frac{2}{1} = \frac{8}{5} = 1\frac{3}{5}$ cups/recipe

Sometimes we can find unit rates by filling out tables.

Luke likes running. He runs 2 1/2 miles every 1/2 hour. Complete the table to find out how far he runs in each time interval. Which one shows his unit rate (miles per hour)?

Distance	2 1/2	5	7 1/2	10	12 1/2
Time (hr)	1/2	1	1 1/2	2	2 1/2

5 mi / 1 hr

Complete the table to find the unit rate.

Jeff hikes 1/2 mile every 1/4 hour. What is his unit rate?

2 mil / hr

Distance	1/2	1	1½	2
Time	1/4	½	¾	1

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

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

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

Complete the table to find the unit rate.

Lisa hikes 1/3 mile every 1/6 hour. What is her unit rate?

Distance	1/3	2/3	1	1 1/3	1 2/3	2
Time	1/6	1/3	1/2	2/3	5/6	1

$\frac{1}{3}+\frac{1}{3}=\frac{2}{3}$ $\quad \frac{2}{3}+\frac{1}{3}=\frac{3}{3}=1$ $\quad 1\frac{1}{3}$ $\quad 1\frac{2}{3}$ $\quad \frac{5}{3}+\frac{1}{3}=\frac{6}{3}=2$

$\frac{1}{6}+\frac{1}{6}=\frac{2}{6}=\frac{1}{3}$ $\quad \frac{2}{6}+\frac{1}{6}=\frac{3}{6}=\frac{1}{2}$ $\quad \frac{3}{6}+\frac{1}{6}=\frac{4}{6}=\frac{2}{3}$ $\quad \frac{4}{6}+\frac{1}{6}=\frac{5}{6}$ $\quad \frac{5}{6}+\frac{1}{6}=\frac{6}{6}$

2 mi / 1 hr

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How can we find unit rates?

table OR divide

Which way is easier?

Divide!

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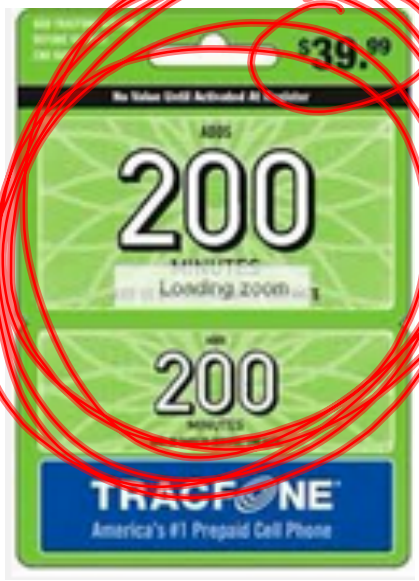
0.19995 → $0.20/min $.33/min

0.331.....

Unit Rates help us compare...

39.99/200min 19.99/60min.



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Which one is cheaper??? (Find the cost per hour)

Can talk for 1/2 hour

$3.25/½ hr

$3.25/30min

0.1083....

$0.11/min

Can talk for 2.5 hours

30
60
+60
150
in min

$10/2.5hrs

$10/150min

0.0666....

$0.07/min

$0.05/min

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