


MATH DOESN'T SUCK



Solution Guide – Chapter 16 Ratios

Doing the Math from p. 198

2) Both the 16 and the 12 are “numbers of texts”, so we’ve got the same units. We want a ratio of “your texts to his”, so let’s be sure to put “your texts” first, or on top of the

fraction: $\frac{16}{12}$. Now reduce. The GCF of 16 and 12 is 4, so: $\frac{16 \div 4}{12 \div 4} = \frac{4}{3}$.

Answer: the ratio of your texts to his is “4 to 3” or 4:3 or $\frac{4}{3}$.

3) Both amounts are “how much of a sandwich were eaten” so we’ve got the same units.

How much “you ate” goes first, or on top of the fraction, so: $\frac{1\frac{1}{2}}{\frac{1}{2}}$. We’d better simplify

this complex fraction, so first we can rewrite the numerator as an improper fraction (use MAD face method, see p.45 of the book for review) to get $\frac{3}{2}$ for the numerator.

So now the fraction looks like $\frac{\frac{3}{2}}{\frac{1}{2}}$. Not quite done yet!

We've created a "tall and skinny" fraction so we can use "means and extremes" (see p. 97 in the book for a review): $\frac{3}{\frac{2}{1}}$ Multiply the *extremes* $3 \times 2 = 6$ for the numerator and

the *means* $2 \times 1 = 2$ for the denominator. Our fraction now looks like: $\frac{6}{2}$.

Finally, reducing: $\frac{6 \div 2}{2 \div 2} = \frac{3}{1}$.

Answer: ratio of how much you ate compared to how much your best friend ate is:

"**3 to 1**" or **3:1** or $\frac{3}{1}$.

4) We're comparing \$6 to 60 cents – so these are two different units.

Before we can continue, let's convert \$6 into cents. Since there are 100 cents in every dollar, that means we can multiply 100 times \$6 and get the number of cents: $6 \times 100 = 600$ cents. Now we can compare the two in a ratio:

We want makeup money on top, so: $\frac{600}{60}$. Reduce: $\frac{600 \div 60}{60 \div 60} = \frac{10}{1}$. And that's it!

Answer: The ratio of money spent on makeup to the banana is "**10 to 1**" or **10:1** or $\frac{10}{1}$.

5) We are comparing your 2 *packs* of gum to your friend's 6 *pieces* of gum.

First, we'll need to get them in the same units. Since there are 5 pieces per pack, 2 packs of gum would have a total of $2 \times 5 = 10$ pieces. Now we are comparing your 10 *pieces* to your friend's 6 *pieces*. No problem! Our fraction will be: $\frac{10}{6} = \frac{10 \div 2}{6 \div 2} = \frac{5}{3}$. So for every 5 pieces you have, your friend has 3 pieces.

Answer: The ratio of your gum to her gum is: "**5 to 3**" or **5:3** or $\frac{5}{3}$.