

Making Key Ideas Public

- 1 Mister Strong: Ester. Can you go up there and explain the equation that you chose to use
2 for this?
- 3 Ester: Okay. Well, at first, when we were coming up with the equation, we came
4 up with that. But then, we realized, well, wait, we're not diving $\frac{1}{3}$ cause
5 this shows that this is the dividend. But it's not what we're dividing. We're
6 actually dividing the miles so we change it up to this because 4 is what
7 we're dividing.
- 8 Mister Strong: I need a little bit more clarification. Connie, talk to me. Revoice what
9 she's trying to explain to me.
- 10 Connie: She said that the bottom one was wrong because in the bottom one, she's
11 saying that they're dividing $\frac{1}{3}$ into 4 but in the actual problem, we're
12 diving 4 into $\frac{1}{3}$ s.
- 13 Mister Strong: Okay, so, my big question is, does order matter?
- 14 Students: Yes. Yeah.
- 15 Mister Strong: What would I get if I divide $\frac{1}{3}$ into 4 parts? What would my answer be?
- 16 Markel: $\frac{1}{2}$.
- 17 Mister Strong: So, you guys did this math and you got $\frac{1}{2}$ and you realized that didn't
18 work.
- 19 Mister Strong: Okay. So you determined this as a division problem?
- 20 Ester: Yes, cause we're dividing the mile by $\frac{1}{3}$ because you want to know how
21 many times you stop to take a drink. When we divided the miles, we knew
22 that every $\frac{1}{3}$ mile, you stop to take a drink and that happens 3 times in
23 each mile.
- 24
- 25 Mister Strong: So, what happens to your quotient when you divide by a fraction?
26 Describe the relationship here. Markel.
- 27 Markel: It gets bigger.
- 28 Mister Strong: Bigger than what?
- 29 Markel: Bigger than the dividend started as.
- 30 Joaquin: Well, if you know, you can use multiplication and division to figure this
31 out. So, if you use division, you know that your quotient's gonna get
32 bigger with a fraction because when you're multiplying, you get smaller
33 with a ... Your product gets smaller when you multiply by a fraction.
- 34 Joaquin: And then, when you multiply by a whole number in multiplication, you
35 get a bigger number but when you divide by a whole number ... When you
36 divide a fraction by a whole number, then your answer gets smaller. So if
37 you divide by your fraction, your quotient gets bigger. If you divide by a
38 whole number, then it gets smaller because it's the other way around in
39 multiplication.
- 40 Mister Strong: Zane, wrap this up for me.
- 41 Zane: Because you're dividing by a fraction, is a piece of a whole, so you're
42 dividing by something that's smaller than a whole so you're gonna have a

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43 lot more pieces because there's smaller pieces. Whereas, when you're
44 dividing by a whole number, the pieces are bigger so you're gonna have
45 less pieces.
46 Mister Strong: Show me.
47 Zane: So, when you're dividing the 4 into $\frac{1}{3}$ s, you're gonna have a lot more
48 pieces because they're smaller than the whole mile. But if you're gonna
49 divide it by a whole mile, there are gonna be less pieces cause they're a lot
50 larger.
51
52 Mister Strong: Now, you guys have some stuff written there on the right hand side. What
53 is that talking about?
54 Rutland: It says, "you can figure out how many times he stops each mile by
55 multiplying the number of miles by how many times he stops each mile."
56 So, it doesn't matter what number of miles or how many times he stops.
57 Joaquin: Here's an example. You have 256 miles and then 7 is your fraction, then
58 you just multiply the number of miles by the fraction
59 Mister Strong: What fraction are you talking about?
60 Mister Strong: Cause I see his whole number. Where's the fraction?
61 Joaquin: It represents the denominator.
62 Mister Strong: So you can determine how many drinks there will be no matter how many
63 miles?
64 Rutland: Yes.
65 Mister Strong: Kamaria, can you talk to me about that again? Explain that a little bit.
66 Kamaria: It might start off being $\frac{1}{7}$ but it's gonna end up multiplying by 7 because
67 that's what the denominator is.
68 Mister Strong: And why am I multiplying by 7? And what is the denominator telling
69 me?
70 Kamaria: How much there is. That that's how much there is in the entire piece there.
71 Mister Strong: Jackson, help me out a little bit more. Talk to me about ... I need to have a
72 little bit more clarity on that.
73 Jackson: However many miles it is, they can tell how many drinks you took if this
74 pattern continues.