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4.2.4 How can I use ratios?

Ratios in Other Situations



4-75. Katura was making berry drink from a bag of powdered mix. The directions said to use 5 scoops of the powder for every 8 cups of water. Her pitcher holds 16 cups of water.

- a) What is the ratio of powder to water in the directions?
- b) Work with your team to figure out how much powder Katura needs to mix with 16 cups of water.
- c) What is the ratio of powder to water in Katura's pitcher? How does this compare to the ratio in the directions?



4-76 ON THE TRAIL AGAIN: Ms. Hartley's students were working with their mix of raisins and peanuts from Chapters 1 and 2. The class found that 30% of the mix was raisins. Sophie was working with a sample from the mix and counted 42 peanuts in it.

Sophie had just poured her sample back into the jar, when she realized that she had counted the wrong thing! Her teacher wanted to know how many raisins were in the sample, not peanuts! Work with your team and use the questions below to help Sophie figure out a reasonable estimate of how many raisins were in her sample.

- a) Sophie knows that 30% is the same as $\frac{3}{10}$. Can this be thought of as a ratio? Which two quantities are being compared in this case?
- b) Could Sophie write a ratio comparing the number of raisins to peanuts? How could you figure out this ratio without having to count the peanuts?
- c) Find an equivalent ratio that will help Sophie figure out how many raisins should have been in her sample that contained 42 peanuts.

4-77. Nicci is setting up a carnival machine with 3 teddy bears, 7 stuffed frogs, 3 rubber duckies, and 2 stuffed dinosaurs. Find the following ratios for Nicci's machine:

- a) The number of teddy bears to total prizes.
- b) The number of teddy bears to the number of stuffed dinosaurs.
- c) The number of teddy bears to the combined number of other prizes.



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4-75 The ratio of powder to water
 a) is 5 to 8. This can also be written:
 $5:8$ or $\frac{5}{8}$.

b) $\frac{\text{powder}}{\text{water}} = \frac{5}{8} \times \left[\frac{2}{2} \right] = \frac{10}{16}$ If there are
 16 cups of water,
 she will need 10
 scoops of powder.

c) The ratio in Katura's pitcher is $10:16$. This
 is equivalent to the original ratio $5:8$.

4-76 a) Yes, $\frac{3}{10}$ can be thought of as a ratio. The
 ratio is comparing raisins to total mixture.

b) You can subtract. Since 3 are raisins, 7
 must be peanuts for a total of 10. The
 ratio of raisins to peanuts is 3:7.

c) $\frac{\text{raisins}}{\text{peanuts}} = \frac{3}{7} \times \left[\frac{6}{6} \right] = \frac{\square}{42}$ There would
 be 18 raisins in a
 mix with 42 peanuts.

4-77 a) $3:15$, 3 to 15 or $\frac{3}{15}$
 b) $3:2$, 3 to 2 or $\frac{3}{2}$
 c) $3:12$, 3 to 12 or $\frac{3}{12}$