Name_____ Date_____

Ratios

A ratio is simply a comparison between two different things. For example, if a pet store has 25 animals and we want to know the ratio of cats to dogs, we would count the cats and dogs. If we count 15 cats and 10 dogs, we would say that the ratio of cats to dogs is 15 to 10. We could also represent this ratio by saying the ratio of cats to dogs is 15:10. This is called odds notation.

It is important to note the order of your terms when talking about ratios. Since we are saying the ratio of cats to dogs, we put the number of cats first. The number of dogs is second because it is the second term. It is what we are comparing the number of cats *to*. If we asked for the ratio of dogs to cats, we would have to change our ratio to 10:15, because there are 10 dogs and 15 cats. Whichever term appears first should also be the number that appears first in our ratio.

Let's look at another example. If we have 5 sheep and 10 goats, we can say that our ratio of sheep to goats is 5 to 10. We can also say our ratio of sheep to goats is 5:10. There is also another way of noting ratios. It is called fractional notation. Using rational notation, we can say that the ratio of sheep to goats is $\frac{5}{10}$.

You should be able to recognize all three forms of notation. Saying that the ratio of sheep to goats is 5 to 10, 5:10, or $\frac{5}{10}$. All three representations mean the same thing.

Ratios are important because they can help us solve mathematical problems. For example, if I order the cat food for the pet store and I am told that the ratio of cans of cat food to cats is 3:5, I know that I need three cans of cat food to feed 5 cats. If I have 15 cats, I would use my ratio to figure out how many cans of cat food I need to order. I would use the numbers I know to find the number I don't know. My ratio of cans to cats is 3:5. This is my given. I know that I have 15 cats, so I would need to solve for the blank below:

$$\frac{3}{5} = \frac{\quad}{15}$$

I would need to order 9 cans of cat food in order to feed 15 cats. I solved for the blank by asking how many times five goes into fifteen. Five goes into fifteen three times. In other words, I know my ratio when I am talking about 5 cats, I am trying to solve my ratio for 15 cats. Fifteen cats is three times as many cats as five. I now know that I would need to multiply my top number (3) by five in order to find out how many cans I would need for 15 cats. 3 X 3 = 9. I would need 9 cans for 15 cats. I can also express this mathematically by saying:

$$\frac{3}{5} = \frac{9}{15}$$

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Ratios Questions

Please write the ratios for the following sentences:

1. The ratio of birds to monkeys is 5 to 7 _____.

2. There are 9 cats and 4 dogs. What is the ratio of cats to dogs? _____.

3. There are 9 cats and 4 dogs. What is the ratio of dogs to cats? _____.

4. If you are told that the ratio of girls to boys in a class is 2:3, and you know that there are 6 girls in the class, how many boys are there in the class (You can use the space below to calculate your answer.)? _____

5. If you know that the ratio of geese to ducks is 4:5, and you also know that there are 20 ducks, how many geese are there?_____

Please change the following ratios to fractional notation:

6. 1:2 _____
7. 1:4 _____
8. 1:8 _____
9. 3:10 _____
10. 10:13 _____

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Ratios Answers

Please write the ratios for the following sentences:

4. The ratio of birds to monkeys is 5 to 7 ___5:7_____.

5. There are 9 cats and 4 dogs. What is the ratio of cats to dogs? ___9:4_____.

6. There are 9 cats and 4 dogs. What is the ratio of dogs to cats? ___4:9_____.

4. If you are told that the ratio of girls to boys in a class is 2:3, and you know that there are 6 girls in the class, how many boys are there in the class (You can use the space below to calculate your answer.)? 9

5. If you know that the ratio of geese to ducks is 4:5, and you also know that there are 20 ducks, how many geese are there? 16

Please change the following ratios to fractional notation:

6. 1:2 1/2
7. 1:4 1/4
8. 1:8 1/8
9. 3:10 3/10
10. 10:13 10/13