Name: _____ Date: _____

BLM 2–4

Chapter 2 Problems of the Week

1. On a 10-speed mountain bike, you will notice 2 sprockets attached to the pedals and 5 sprockets attached to the rear wheels. A chain connects the bicycle gears. The gear ratio of the bicycle is the ratio of the number of teeth of the larger gear to the number of teeth of the smaller gear. For example, if there are 36 teeth on one gear and 18 teeth on the other gear, the ratio is $2:1$. Ask your teacher if you can bring a bicycle to the classroom and count the teeth on the sprockets. What is the greatest ratio you can form? the smallest ratio? For what purposes are large and small gear ratios used?

2. In a BC orchard, Kelsey picked some apples and peaches. Of the 10 apples she picked, $\frac{1}{2}$ were green and $\frac{1}{2}$ were red. The ratio of the number of apples picked to peaches picked was $1:2$.

a) What is the difference between the ratio of $1:2$ and $\frac{1}{2}$ in this situation?

b) It is accurate to say that 50% of the apples were green. Is it accurate to say that 50% of the fruit picked were apples? Explain.

3. Ian flipped a coin 20 times and recorded the number of heads, the number of tails, and the time it took to perform 20 tosses.

a) He had a ratio of heads to tails of $4:1$. What was his ratio of heads to total tosses in lowest terms? What percent does this represent?

b) When Ian compared the number of coin tosses to the time taken, he found that he had a rate of 20 tosses in 80 seconds. Can he express this as a percent? Explain.

4. Before, a spruce tree was 2.5 m tall and a pine tree was 3.5 m tall. Now, the spruce tree is 3 m tall and the pine tree is 4 m tall. Which tree grew at a faster rate? Explain your reasoning.

5. Sean took a trip to visit his relatives. He drove 1 h at 100 km/h. He drove back the same distance at an average speed of 25 km/h. What was his average speed?
Hint: It was not 62.5 km/h.

6. Currently Frank is 30 years old. Paula is 6 years old. Represent the age relationship as a ratio. Will this age ratio ever happen again? Explain.

7. A plane travels for 5 hours at a speed of 800 km/h. What was its average speed over the first three hours of flight?