Name: _____ Date: _____

WORKING WITH RATES USING THE CALCULATOR
N-GEN MATH® 7

In this lesson we will be looking at the ideas of ratios and rates, as we did a few lessons ago. But we will perform the multiplication and division using our calculators. Sometimes we will want our answers **rounded** to a **certain degree of precision**. Let's first review this idea.

***Exercise* #1:** Given the number 352.6385. Round this number to each of the following.

(a) nearest tenth (b) nearest hundred (c) nearest hundredth (d) nearest thousandth

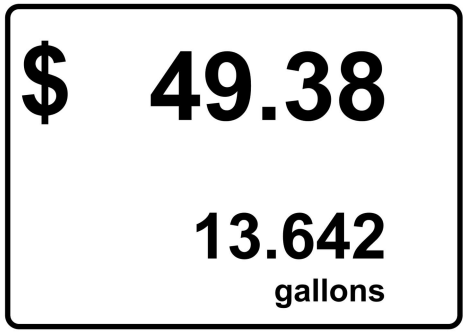
***Exercise* #2:** At a gas station, gasoline costs $3.39 per gallon. Laura puts 14.38 gallons of gasoline into her car.

(a) Give an expression for how much Laura spends on gas. Evaluate this expression on your calculator. Give all decimals.

(b) What should you round your answer in (a) to? Why?

(c) Georgina filled up her car at a different gas station and saw the following readout:

How much did the gas cost, in dollars per gallon, that Georgina put in her car? Show the calculation you used and round to an appropriate level.



(d) Georgina's car can drive 34.5 miles per gallon of gasoline it uses. How far, to the nearest mile, can Georgina drive on the gasoline she put in her car?

When using a calculator to solve problems involving rates, knowing whether to multiply or divide is extremely important. Show products and quotients but use your calculator to evaluate them.

***Exercise* #3:** Zeke is trying to determine the weight of 52 gallons of water in his fish tank. He takes a five-gallon bucket that weighs 1.81 pounds when empty and fills it with five gallons of water. The total weight of the bucket and water is 43.56 pounds.

(a) Using the information given, what is the weight of water in **pounds per gallon**?

(b) How much will 52 gallons of water weigh given your answer to (a)?

***Exercise* #4:** A maple tree grew to 33 inches tall in its first four years.

(a) What is the growth rate of the maple tree in inches per year?

(b) If the maple tree grows at this rate for an additional 20 years, will it be taller than 15 feet? Show the calculations you use to find your answer.

(c) If the tree continues to grow at this rate, how many years will it take for the tree to reach a height of 30 feet? Round to the nearest year.

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WORKING WITH RATES USING THE CALCULATOR
N-GEN MATH® 7 HOMEWORK

USING YOUR MATH

1. Dante is on a hike. He notices that after 2 hours he has hiked 7.24 miles.

   (a) At what rate is Dante hiking in miles per hour? Show the calculation you use and do not round.

   (b) Dante stops walking after 5.2 hours. If he walked at the same rate the entire time, how far did Dante walk? Round your answer to the nearest tenth of a mile.

2. Ben buys 14.392 gallons of gas that costs \$3.19 per gallon. Which of the following is closest to the amount Ben spent on gas?

   (1) \$43 (3) \$45

   (2) \$44 (4) \$46 _____

3. There are 5,280 feet per mile. Using this information, answer the following questions.

   (a) If Nathan runs 4.71 miles, how many feet has he run? Round your answer to the nearest hundred feet.

   (b) Makayla goes skydiving and jumps from twelve thousand feet. From how many miles above the ground did Makayla jump? Round to the nearest tenth.

4. At 8:00 am the temperature was $58\,°F$. At 11:00 am the temperature had risen to $75\,°F$. During these three hours the temperature was rising at which of the following rates?

   (1) 5.7 °F per hour (3) 7.2 °F per hour

   (2) 6.5 °F per hour (4) 8.1 °F per hour _____

5. Jaxson was filling his pool. When he started, it already contained 486 gallons. He filled it for 95 minutes with water coming out of a hose at a rate of 8.4 gallons per minute.

   (a) How many gallons of water are in the pool at the end of 95 minutes?

   (b) Jaxson realizes he has overfilled the pool and opens a drain that lets water out at a rate of 10.2 gallons per minute. If Jaxson wants 1,100 gallons of water in the pool, how many minutes should he let it drain? Round to the nearest minute.

6. Ice on a lake gets thicker as long as the temperature is below freezing. On a certain lake it took 8 days for the ice to reach a thickness of 3 inches.

   (a) At what rate was the ice growing over these 8 days in inches per day? Do not round your decimal answer.

   (b) Ice is safe to walk on when it is 10 inches thick. Would this ice be safe after 3 weeks if it grew at the rate in (a)?

   (c) The ice will stop growing if it reaches a thickness of 1.5 feet. At the rate in (a), how many days of freezing would this take? First, think about how many inches 1.5 feet represents.