3. All final zeros to the right of a decimal point in a measurement are significant. This means that the measurement 1.000 miles has four significant digits.

4. If there is no decimal point, final zeros in a measurement are NOT significant. This means that the number 20 in the phrase "20-liter water cooler" has one significant digit. The water cooler isn't marked off in 1-liter increments, so no measurement decision wa made regarding the ones place.

5. A decimal point is used after a whole number ending in zero to indicate that a final zero IS significant. If you measure 100 grams of lemonade powder to the nearest whole gran write the number as 100. grams. This shows that your measurement has three significan digits.

6. In a measurement, zeros that exist only to put the decimal point in the right place are NOT significant. This means that the number 0.0008 in the phrase "0.0008 kilometer" has one significant digit.

7. A number that is found by counting rather than measuring is said to have an infinite number of significant digits. For example, the race officials count 386 runners at the starting line. The number 386, in this case, has an infinite number of significant digit

Find the number of significant digits for each value below.

Example	Number of Significant Digits
a. 36.33 minutes	4
b. 100 miles	1
c. 120.2 mL	4
d. 0.0074 km	2
e. 0.010 kg	2
f. 300. g	3
g. 39 students	infinite

In the table below, write two of your own examples of significant digits for each of the 7 rules. The first one has been done for you. (The 7 rules are listed at the top of this worksheet.)

Rule	Example	# of Significant Digits	Example	# of Significant Digits
1	45 minutes	2	143.98 dL	5
2	0.904050607008ml	12	0.7304	4
3	16.000 m	5		
4	510 m	2		
5	200. m	3		
6	0.01 cm	1		
7	4 kids	infinite		

Report your answers with significant digits

Have you ever participated in a road race? The following problems are all related to a road race event. Can you come up with some other problems that you might have to solve if you were running in or volunteering for a road race?

1. The banner over the finish line of a running race is 400. centimeters long and 86 centimeters high. What is the area of the banner? (area = length x width)

3 2

$a = w \times l = 86\,cm \times 400.\,cm = 34{,}000\,cm^2$

2

2. Heidi stops at three ~~water~~ stations during the running race. She drinks 0.25 liters of water at the first stop, 0.3 liters at the second stop, and 0.37 liters at the third stop. How much water does she consume throughout the race?

1 2

$0.25\,l + 0.3\,l + 0.37 = 0.9\,l$

3. The race officials want to set up portable bleachers near the finish line. Each set of bleachers is 4.50 meters long and 2.85 meters wide. What is the area of the bleachers?

3 3

$a = l \times w = 4.50\,m \times 2.85\,m = 12.8\,m^2$

4. Come up with one more problem that uses information that is related to a road race. Write your problem in the space below and come up with the answer. Be sure to write your answer with the correct number of significant digits.