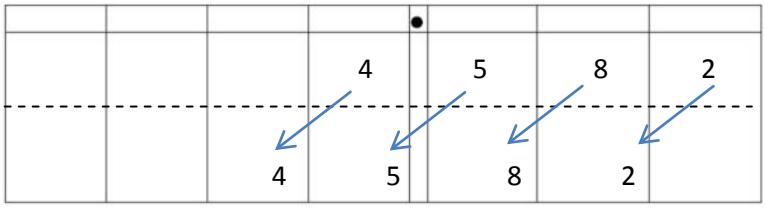
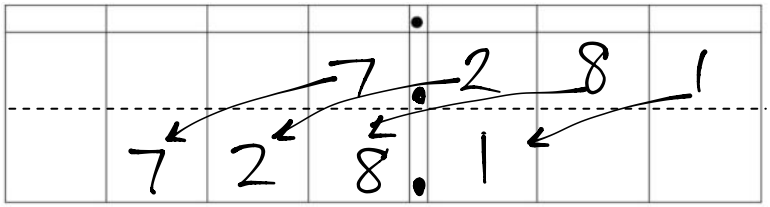
Name _____ Date _____

1. Record the digits of the first factor on the top row of the place value chart. Draw arrows to show how the value of each digit changes when you multiply. Record the product on the second row of the place value chart. The first one has been done for you.

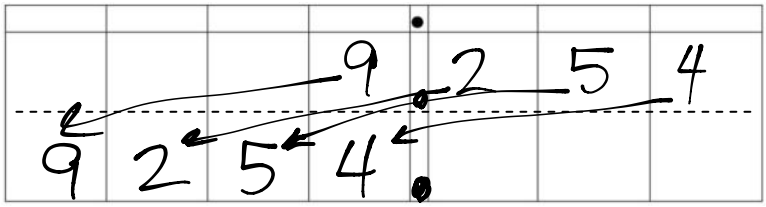
a. 4.582 x 10 = 45.82



b. 7.281 x 100 = 728.1



c. 9.254 x 1000 = 9254



d. Explain how and why the value of the 2 changed in (a), (b), and (c).

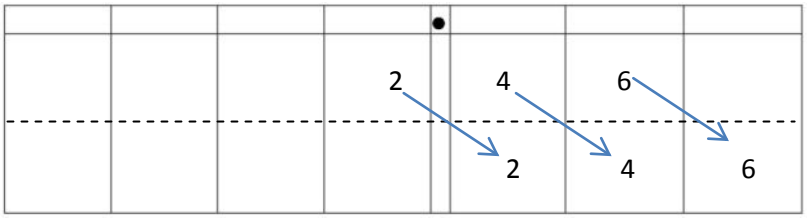
(a) The 2 became 10 times bigger.

(b) The 2 became 100 times bigger.

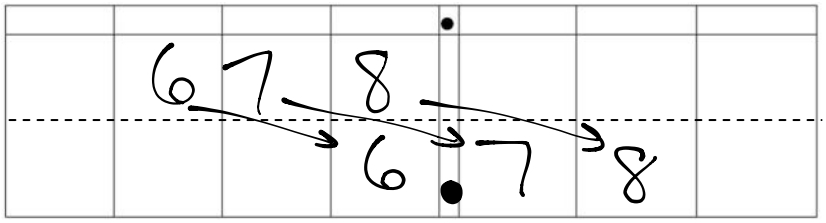
(c) The 2 became 1000 times bigger.

2. Record the digits of the dividend on the top row of the place value chart. Draw arrows to show how the value of each digit changes when you divide. Record the quotient on the second row of the place value chart. The first one has been done for you.

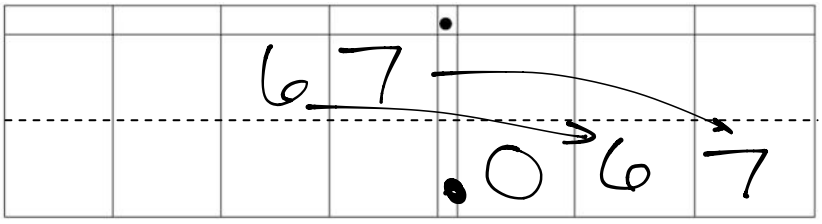
   a. 2.46 ÷ 10 = 0.246



   b. 678 ÷ 100 = 6.78



   c. 67 ÷ 1000= 0.067



   d. Explain how and why the value of the 6 changed in the quotients in (a), (b), and (c).

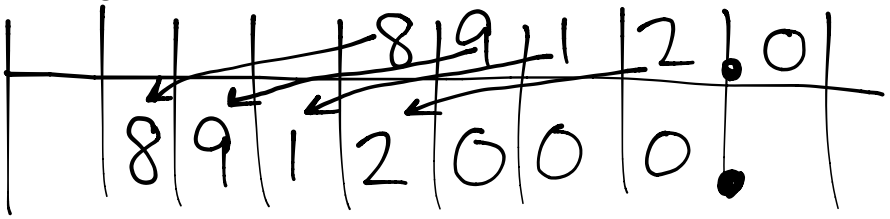
(a) The 6 became 10 times smaller.

(b) The 6 became 100 times smaller.

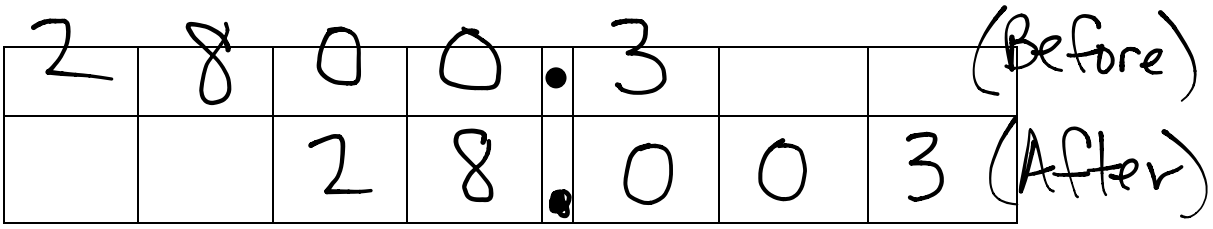
(c) The 6 became 1000 times smaller.

3. Researchers counted 8,912 monarch butterflies on one branch of a tree at a site in Mexico. They estimated that the total number of butterflies at the site was 1000 times as large. About how many butterflies were at the site in all? Explain your thinking and include a statement of the solution.

8,912 × 1000 = 8,912,000



4. A student used his place value chart to show a number. After the teacher instructed him to divide his number by 100, the chart showed 28.003. Draw a picture of what the place value chart looked like at first.



a. Explain how you decided what to draw on your place value chart. Be sure to include your reasoning about how the value of the digits was affected by the division.

Each digit in "After" should be 100 times smaller than "Before".

5. On a map, the perimeter of a park is 0.251 meters. The actual perimeter of the park is 1000 times as large. What is the actual perimeter of the park? Explain how you know using a place value chart.

0.251 × 1000 = 251