

6. Jeanne makes hair bows to sell at the craft fair. Each bow requires .5 yards of ribbon.
- a. At the fabric store, ribbon is sold by the foot. If Jeanne wants to make 84 bows, how many feet of ribbon must she buy? Show all your work.

$$\begin{array}{r}
 .5 \text{ y} = \underline{1.5 \text{ ft}} \\
 \begin{array}{r}
 5 \text{ tenths} \\
 \times 3 \text{ (feet in a yard)} \\
 \hline
 15 \text{ tenths} = 1.5 \text{ feet}
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 15 \text{ tenths} \\
 \times 84 \\
 \hline
 60 \\
 + 1200 \\
 \hline
 1260 \text{ tenths} \\
 = 126 \text{ feet}
 \end{array}$$

Jeanne must buy 126 feet of ribbon.

- b. If the ribbon costs 10¢ per foot, what is the total cost of the ribbon in dollars? Explain your reasoning, including how you decided where to place the decimal.

$$126 \text{ feet} \times 10 \text{ cents}$$

$$\begin{array}{r}
 126 \times 10 \\
 \swarrow \swarrow \swarrow \\
 1260 \text{ cents} = \$12.60
 \end{array}$$

I shifted the place value one place to the left when multiplying by 10.

- c. A manufacturer is making 1,000 times as many bows as Jeanne to sell in stores nationwide. Write an expression using exponents to show how many yards of ribbon the manufacturer will need. Do not calculate the total.

$$\begin{array}{r}
 84 \times 1,000 \\
 84 \times 10^3
 \end{array}$$