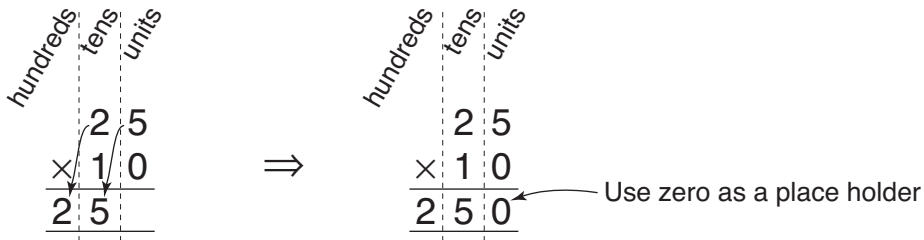


7. [Powers of 10 \times, \div]

Skill 7.1 Multiplying a whole number by a power of 10 using zeros as place holders.

MM5 1 1 2 2 3 3 4 4
MM6 1 1 2 2 3 3 4 4

- When multiplying by 10 move each digit one place to the left.



Hint: Multiplying by a power of 10 does not change the digits in the number.
Example: $25 \times 10 = 250$ the 2 and the 5 remain in the answer.

- When multiplying by 100 move each digit two places to the left.
- When multiplying by 1000 move each digit three places to the left.
etc.

Q.
$$\begin{array}{r} 59 \\ \times 100 \\ \hline \end{array}$$

A.
$$\begin{array}{r} \text{thousands} & \text{hundreds} & \text{tens} & \text{units} \\ & 5 & 9 & \\ \times & 1 & 0 & 0 \\ \hline 5 & 9 & 0 & 0 \end{array}$$

59 \times 100 means 59 groups of 100.
Shift 5 and 9 two places to the left.
Use 0's as place holders in the vacated units and tens places.
Units first!

a)
$$\begin{array}{r} 70 \\ \times 10 \\ \hline \end{array}$$

Use zero as a place holder

b)
$$\begin{array}{r} 20 \\ \times 10 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 224 \\ \times 10 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 376 \\ \times 10 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 25 \\ \times 100 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 73 \\ \times 100 \\ \hline \end{array}$$

g)
$$\begin{array}{r} 80 \\ \times 100 \\ \hline \end{array}$$

h)
$$\begin{array}{r} 50 \\ \times 100 \\ \hline \end{array}$$

i)
$$\begin{array}{r} 24 \\ \times 1000 \\ \hline \end{array}$$

j)
$$\begin{array}{r} 39 \\ \times 1000 \\ \hline \end{array}$$

k)
$$\begin{array}{r} 10 \\ \times 1000 \\ \hline \end{array}$$

l)
$$\begin{array}{r} 800 \\ \times 1000 \\ \hline \end{array}$$

Convert the division to a fraction and.....

EITHER

Divide both the numerator and the denominator by the value of the denominator.

$$40 \div 10 = \frac{40}{10} = \frac{40}{10} \frac{10}{10} = \frac{4}{1} = 4$$

$$600 \div 100 = \frac{600}{100} = \frac{600}{100} \frac{100}{100} = \frac{6}{1} = 6$$

OR

Cancel the zeros in the numerator against the zeros in the denominator.

$$\frac{40}{10} = \frac{4\cancel{0}}{1\cancel{0}} = \frac{4}{1} = 4$$

$$\frac{600}{100} = \frac{6\cancel{0}\cancel{0}}{1\cancel{0}\cancel{0}} = \frac{6}{1} = 6$$

Q. $5400 \div 100 =$

A. $5400 \div 100$
 $= \frac{5400}{100} \frac{100}{100}$
 $= \frac{54}{1}$
 $= 54$

How many groups of 100 make up 5400?

Convert the division to a fraction.

Divide the numerator and the denominator by 100.

54 groups of 100 make up 5400.

Hint: Five thousand, four hundred can also be called fifty-four hundred.

a) $800 \div 100 =$

$$= \frac{800}{100} =$$

b) $70 \div 10 =$

$$= \frac{\dots\dots\dots}{\dots\dots\dots}$$

c) $850 \div 10 =$

$$= \frac{\dots\dots\dots}{\dots\dots\dots}$$

d) $900 \div 100 =$

$$= \frac{\dots\dots\dots}{\dots\dots\dots}$$

e) $500 \div 100 =$

$$= \frac{\dots\dots\dots}{\dots\dots\dots}$$

f) $2400 \div 100 =$

$$= \frac{\dots\dots\dots}{\dots\dots\dots}$$

g) $13200 \div 100 =$

$$= \frac{\dots\dots\dots}{\dots\dots\dots}$$

h) $9800 \div 10 =$

$$= \frac{\dots\dots\dots}{\dots\dots\dots}$$

i) $15000 \div 1000 =$

$$= \frac{\dots\dots\dots}{\dots\dots\dots}$$

Skill 7.4

Dividing a whole number by a power of 10 by removing zeros or changing place values.

EITHER

- Remove the same number of zeros as in the divisor from the end of the whole number. (1 for 10, 2 for 100, 3 for 1000, etc.)
Example:

$$\begin{aligned} 98000 \div 10 &= 9800 \\ 98000 \div 100 &= 980 \\ 98000 \div 1000 &= 98 \end{aligned}$$

OR

- Move the decimal point the same number of places to the left as there are zeros in the divisor.

Hint: There is a decimal point and zeros which are not written, at the end of any whole number.

$$\begin{aligned} 1 \text{ zero} &\Rightarrow 1 \text{ place left.} & 98000.0 &\Rightarrow 9800 \\ 2 \text{ zeros} &\Rightarrow 2 \text{ places left.} & 98000.0 &\Rightarrow 980 \\ 3 \text{ zeros} &\Rightarrow 3 \text{ places left.} & 98000.0 &\Rightarrow 98 \end{aligned}$$

Q. $44000 \div 1000 =$

A. $44000 \div 1000$
 $= 44000 \div 1000$
 $= 44$

1000 has 3 zeros.
To divide by 1000 remove 3 zeros from both sides of the equation.

Q. $9500 \div 100 =$

A. $9500 \div 100$
 $= 9500.0 \div 100$
 $= 95$

100 has 2 zeros.
To divide by 100 move the decimal point 2 places to the left.

Hint: Nine thousand, five hundred can also be called ninety-five hundred.

a) $600 \div 10 =$

$$= 600.0 \div 10$$

60

b) $90 \div 10 =$

$$= \dots\dots\dots$$

c) $330 \div 10 =$

$$= \dots\dots\dots$$

d) $1600 \div 10 =$

$$= \dots\dots\dots$$

e) $800 \div 100 =$

$$= \dots\dots\dots$$

f) $7100 \div 100 =$

$$= \dots\dots\dots$$

g) $45900 \div 100 =$

$$= \dots\dots\dots$$

h) $9000 \div 1000 =$

$$= \dots\dots\dots$$

i) $74000 \div 1000 =$

$$= \dots\dots\dots$$