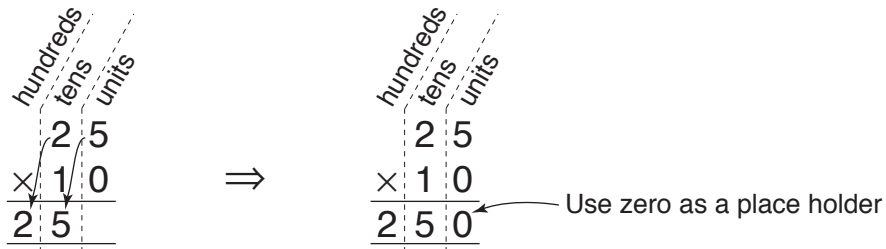


# 7. [Powers of 10 $\times, \div$ ]

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

MM3.2 1 1 2 2 3 3 4 4  
MM4.1 1 1 2 2 3 3 4 4

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

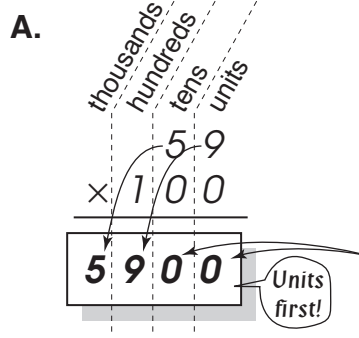


**Hint:** Multiplying by a power of 10 does not change the digits in the number.  
Example:  $25 \times 10 = 250$  the 2 and the 5 remain in the answer.

- 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.
- Add zeros as place holders in the vacated places.

**Q.**

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



$59 \times 100$  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.

**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)**

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

Q.

$$\begin{array}{r} 17 \\ \times 100 \\ \hline \end{array}$$

A.

thousands  
hundreds  
tens  
units

$$\begin{array}{r} 17 \\ \times 100 \\ \hline 1700 \end{array}$$

Units first!

**Units:**  
 $0 \times 17 = 0 \Rightarrow 0$  units

**Tens:**  
 $0 \times 17 = 0 \Rightarrow 0$  tens

**Hundreds:**  
 $1 \times 17 = 17$   
 17 hundreds = 1 thousand + 7 hundreds  
 $\Rightarrow 7$  hundreds  
 $\Rightarrow 1$  thousand

Hint: One thousand, seven hundred can also be called seventeen hundred.

a)

$$\begin{array}{r} 56 \\ \times 10 \\ \hline \end{array}$$

560

Units first!

b)

$$\begin{array}{r} 43 \\ \times 10 \\ \hline \end{array}$$

Units first!

c)

$$\begin{array}{r} 23 \\ \times 10 \\ \hline \end{array}$$

d)

$$\begin{array}{r} 68 \\ \times 10 \\ \hline \end{array}$$

e)

$$\begin{array}{r} 30 \\ \times 10 \\ \hline \end{array}$$

f)

$$\begin{array}{r} 40 \\ \times 10 \\ \hline \end{array}$$

g)

$$\begin{array}{r} 658 \\ \times 10 \\ \hline \end{array}$$

h)

$$\begin{array}{r} 854 \\ \times 10 \\ \hline \end{array}$$

i)

$$\begin{array}{r} 47 \\ \times 100 \\ \hline \end{array}$$

4700

j)

$$\begin{array}{r} 75 \\ \times 100 \\ \hline \end{array}$$

k)

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

l)

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

m)

$$\begin{array}{r} 953 \\ \times 100 \\ \hline \end{array}$$

n)

$$\begin{array}{r} 98 \\ \times 1000 \\ \hline \end{array}$$

o)

$$\begin{array}{r} 70 \\ \times 1000 \\ \hline \end{array}$$

p)

$$\begin{array}{r} 500 \\ \times 1000 \\ \hline \end{array}$$

### Skill 7.3 Dividing a whole number by a power of 10 using fractions.

MM3.2 1 2 3 4  
MM4.1 1 2 3 4

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

EITHER

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

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

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

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.  $5400 \div 100 =$

$$= \frac{5400 \div 100}{100 \div 100}$$

$$= \frac{54}{1}$$

$$= 54$$

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)  $13\,200 \div 100 =$

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

h)  $9800 \div 10 =$

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

i)  $15\,000 \div 1000 =$

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

**Skill 7.4**

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

MM3.2 1 2 3 4  
MM4.1 1 2 3 4

**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.**  $44000 \div 1000 =$   
 $= 44000 \div 1000$   
 $= \mathbf{44}$

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

**a)**  $600 \div 10 =$

$= 600.0 \div 10$

60

**b)**  $90 \div 10 =$

=

**c)**  $330 \div 10 =$

=

**d)**  $1600 \div 10 =$

=

**e)**  $5500 \div 10 =$

=

**f)**  $400 \div 100 =$

=

**g)**  $800 \div 100 =$

=

**h)**  $9500 \div 100 =$

=

**i)**  $7100 \div 100 =$

=

**j)**  $45900 \div 100 =$

=

**k)**  $9000 \div 1000 =$

=

**l)**  $74000 \div 1000 =$

=