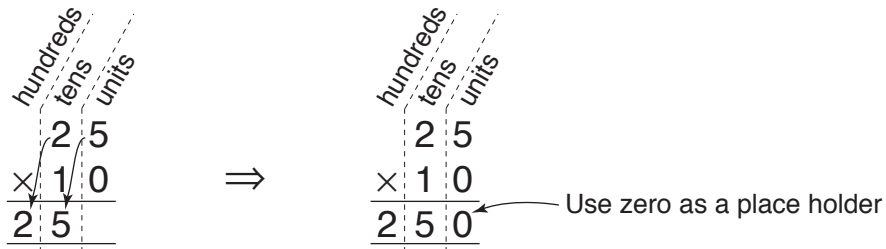


7. [Powers of 10 \times, \div]

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.

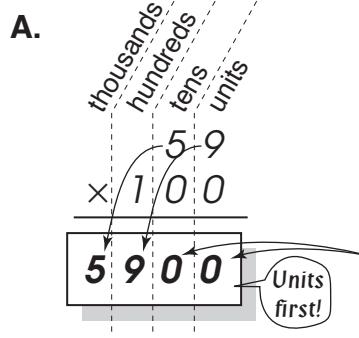


Hint: Multiplying by a power of 10 does not change the digits in the number.
Example: $25 \times 10 = 250$ the 2 and the 5 remain in the answer.

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

Q.

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



59×100 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
1	7		
1	0	0	
1 7 0 0			

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.

MM5 1 2 3 4
MM6 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. $5400 \div 100 =$

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

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

$$= \mathbf{54}$$

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) $800 \div 100 =$

$$= \frac{8\cancel{0}\cancel{0}}{1\cancel{0}\cancel{0}} =$$

8

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.

MM5 1 2 3 4
MM6 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:

$$98000 \div 10 = 9800$$

$$98000 \div 100 = 980$$

$$98000 \div 1000 = 98$$

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.

$$1 \text{ zero} \Rightarrow 1 \text{ place left.} \quad 98000.0 \Rightarrow 9800$$

$$2 \text{ zeros} \Rightarrow 2 \text{ places left.} \quad 98000.0 \Rightarrow 980$$

$$3 \text{ zeros} \Rightarrow 3 \text{ places left.} \quad 98000.0 \Rightarrow 98$$

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) $74000 \div 1000 =$

=