

# 1. [Long $\times, \div$ ]

## Skill 1.1 Multiplying a large number by a multiple of 10.

MMMaive 1 1 2 2 3 3 4 4  
MMLime 1 1 2 2 3 3 4 4

- Consider the zeros as making groups of 10's or 100's and place them at the end.
- Then multiply by the remaining digit as though it was a unit.

Q.  $589 \times 700 =$

A. **412,300**

$$\begin{array}{r} \overset{6}{5} \overset{6}{8} 9 \\ \times \quad \quad 7 \ 0 \ 0 \\ \hline 4 \ 1 \ 2 \ 3 \ 0 \ 0 \end{array}$$

Consider 700 as 7 groups of 100.

Multiply 589 by 7.

To show we want groups of 100, place two zeros after the 4123.

a)  $67 \times 40 =$

**2680**

$$\begin{array}{r} \overset{2}{6} 7 \\ \times \quad 4 \ 0 \\ \hline 2 \ 6 \ 8 \ 0 \end{array}$$

b)  $58 \times 90 =$

$$\begin{array}{r} \overset{7}{5} 8 \\ \times \quad 9 \ 0 \\ \hline \quad 2 \ 0 \end{array}$$

c)  $74 \times 60 =$

$$\begin{array}{r} \quad 7 \ 4 \\ \times \quad 6 \ 0 \\ \hline \quad \quad 0 \end{array}$$

d)  $89 \times 70 =$

$$\begin{array}{r} 8 \ 9 \\ \times \quad 7 \ 0 \\ \hline \end{array}$$

e)  $483 \times 50 =$

$$\begin{array}{r} 4 \ 8 \ 3 \\ \times \quad 5 \ 0 \\ \hline \end{array}$$

f)  $790 \times 80 =$

$$\begin{array}{r} 7 \ 9 \ 0 \\ \times \quad 8 \ 0 \\ \hline \end{array}$$

g)  $890 \times 200 =$

$$\begin{array}{r} \overset{1}{8} \ 9 \ 0 \\ \times \quad \quad 2 \ 0 \ 0 \\ \hline 1 \ 7 \ 8 \ 0 \ 0 \ 0 \end{array}$$

h)  $647 \times 400 =$

$$\begin{array}{r} 6 \ 4 \ 7 \\ \times \quad 4 \ 0 \ 0 \\ \hline \end{array}$$

i)  $2596 \times 200 =$

$$\begin{array}{r} 2 \ 5 \ 9 \ 6 \\ \times \quad \quad 2 \ 0 \ 0 \\ \hline \end{array}$$

j)  $2596 \times 300 =$

$$\begin{array}{r} 2 \ 5 \ 9 \ 6 \\ \times \quad \quad 3 \ 0 \ 0 \\ \hline \end{array}$$

k)  $310 \times 2000 =$

$$\begin{array}{r} 3 \ 1 \ 0 \\ \times \quad 2 \ 0 \ 0 \ 0 \\ \hline \end{array}$$

l)  $475 \times 2000 =$

$$\begin{array}{r} 4 \ 7 \ 5 \\ \times \quad 2 \ 0 \ 0 \ 0 \\ \hline \end{array}$$







- Break down the division into smaller divisions.
- Work from left to right.

Q.  $2835 \div 7 =$

A. **405**

$$\begin{array}{r} 405 \\ 7 \overline{) 2835} \end{array}$$

Starting at the left, divide 7 into 2. 7 doesn't divide into 2 at least once so 'carry over' the 2 groups of 1000 and make 28 groups of 100.

7 divides into 28 four times and 0 remainder. Write a 4 above the 8.

Then divide 7 into 3. 7 doesn't divide into 3 at least once so 'carry over' the 3 groups of 10 and make 35 groups of 1. Write a 0 above the 3.

7 divides into 35 five times and 0 remainder. Write a 5 above the 5.

a)  $756 \div 9 =$

**84**

$$\begin{array}{r} 84 \\ 9 \overline{) 756} \end{array}$$

b)  $136 \div 8 =$

$$\begin{array}{r} 17 \\ 8 \overline{) 136} \end{array}$$

c)  $390 \div 6 =$

$$\begin{array}{r} 65 \\ 6 \overline{) 390} \end{array}$$

d)  $496 \div 4 =$

$$\begin{array}{r} 124 \\ 4 \overline{) 496} \end{array}$$

e)  $792 \div 3 =$

$$\begin{array}{r} 264 \\ 3 \overline{) 792} \end{array}$$

f)  $854 \div 7 =$

$$\begin{array}{r} 122 \\ 7 \overline{) 854} \end{array}$$

g)  $3324 \div 4 =$

**831**

$$\begin{array}{r} 831 \\ 4 \overline{) 3324} \end{array}$$

h)  $1491 \div 3 =$

$$\begin{array}{r} 497 \\ 3 \overline{) 1491} \end{array}$$

i)  $4135 \div 5 =$

$$\begin{array}{r} 827 \\ 5 \overline{) 4135} \end{array}$$

j)  $2384 \div 4 =$

$$\begin{array}{r} 596 \\ 4 \overline{) 2384} \end{array}$$

k)  $5670 \div 6 =$

$$\begin{array}{r} 945 \\ 6 \overline{) 5670} \end{array}$$

l)  $4383 \div 9 =$

$$\begin{array}{r} 487 \\ 9 \overline{) 4383} \end{array}$$

m)  $6013 \div 7 =$

$$\begin{array}{r} 859 \\ 7 \overline{) 6013} \end{array}$$

n)  $8560 \div 5 =$

$$\begin{array}{r} 1712 \\ 5 \overline{) 8560} \end{array}$$

o)  $9048 \div 8 =$

$$\begin{array}{r} 1131 \\ 8 \overline{) 9048} \end{array}$$

EITHER

When the whole number ends in the same number of zeros or more zeros than the power of 10:

- Take off as many zeros in the whole number as there are zeros in the power of 10.

Example:  $54,000 \div 10 = 5400$   
 $54,000 \div 100 = 540$   
 $54,000 \div 1000 = 54$

OR

When the whole number ends in less zeros than the power of 10:

- Move the decimal place to the left as many places as there are zeros in the power of 10.

Example:  $3070 \div 100 = 30.\widehat{70} = 30.7$

Hints: Any zero at the end of the number and to the right of the decimal point can be removed.

A decimal point would be at the end of a whole number but is not written by convention, e.g.  $3070 = 3070.0$

Q.  $48,670 \div 1000 =$

A.  $48,670 \div 1000$   
 $= 48,670.0 \div 1000$   
 $= 48.\widehat{670}$   
 $= 48.67$

There are 3 zeros in 1000 so move the decimal point 3 places to the left.

The zero on the right can be removed.

a)  $12,000 \div 100 =$   
 $= 12,000 \div 100 = \boxed{120}$

b)  $15,000 \div 10 =$   
 $= \dots \div \dots = \boxed{\phantom{000}}$

c)  $13,500 \div 10 =$   
 $= \dots \div \dots = \boxed{\phantom{000}}$

d)  $98,200 \div 100 =$   
 $= \dots \div \dots = \boxed{\phantom{000}}$

e)  $3200 \div 100 =$   
 $= \dots \div \dots = \boxed{\phantom{000}}$

f)  $80,000 \div 100 =$   
 $= \dots \div \dots = \boxed{\phantom{000}}$

g)  $543 \div 10 =$   
 $= 54.\widehat{3} = \boxed{54.3}$

h)  $278 \div 10 =$   
 $= \dots \div \dots = \boxed{\phantom{000}}$

i)  $5466 \div 10 =$   
 $= \dots \div \dots = \boxed{\phantom{000}}$

j)  $6450 \div 100 =$   
 $= \dots \div \dots = \boxed{\phantom{000}}$

k)  $43,070 \div 100 =$   
 $= \dots \div \dots = \boxed{\phantom{000}}$

l)  $5507 \div 100 =$   
 $= \dots \div \dots = \boxed{\phantom{000}}$

m)  $19,034 \div 100 =$   
 $= \dots \div \dots = \boxed{\phantom{000}}$

n)  $23,790 \div 1000 =$   
 $= \dots \div \dots = \boxed{\phantom{000}}$

o)  $42,210 \div 1000 =$   
 $= \dots \div \dots = \boxed{\phantom{000}}$

- If both the dividend and the divisor end in 0 or 00 then divide both numbers by 10 or 100 to remove both zero endings.
- Then divide by the remaining digit as though it was a unit.

**Q.**  $34,780 \div 20 =$

**A.**  $34,780 \div 20$   
 $= 34,78\cancel{0} \div 2\cancel{0}$   
 $= 1739$

$$\begin{array}{r} 1739 \\ 2 \overline{) 3478} \end{array}$$

Divide both numbers by 10 to remove the zeros.

Then complete the division.

**a)**  $2460 \div 30 =$

$= 246\cancel{0} \div 3\cancel{0} =$

$$\begin{array}{r} 82 \\ 3 \overline{) 246} \end{array}$$

**b)**  $1760 \div 20 =$

$= 176\cancel{0} \div 2\cancel{0} =$

$$\begin{array}{r} 88 \\ 2 \overline{) 176} \end{array}$$

**c)**  $6950 \div 50 =$

$=$    $=$

$$\begin{array}{r} 139 \\ 5 \overline{) 695} \end{array}$$

**d)**  $5480 \div 40 =$

$=$    $=$

$$\begin{array}{r} 137 \\ 4 \overline{) 548} \end{array}$$

**e)**  $9660 \div 70 =$

$=$    $=$

$$\begin{array}{r} 138 \\ 7 \overline{) 966} \end{array}$$

**f)**  $8220 \div 30 =$

$=$    $=$

$$\begin{array}{r} 274 \\ 3 \overline{) 822} \end{array}$$

**g)**  $39,120 \div 40 =$

$= 39,12\cancel{0} \div 4\cancel{0} =$

$$\begin{array}{r} 978 \\ 4 \overline{) 3912} \end{array}$$

**h)**  $75,980 \div 20 =$

$=$    $=$

$$\begin{array}{r} 3799 \\ 2 \overline{) 7598} \end{array}$$

**i)**  $37,550 \div 50 =$

$=$    $=$

$$\begin{array}{r} 751 \\ 5 \overline{) 3755} \end{array}$$

**j)**  $21,420 \div 60 =$

$=$    $=$

$$\begin{array}{r} 357 \\ 6 \overline{) 2142} \end{array}$$

**k)**  $50,080 \div 80 =$

$=$    $=$

$$\begin{array}{r} 626 \\ 8 \overline{) 5008} \end{array}$$

**l)**  $52,380 \div 90 =$

$=$    $=$

$$\begin{array}{r} 582 \\ 9 \overline{) 5238} \end{array}$$

**m)**  $137,700 \div 300 =$

$=$    $=$

$$\begin{array}{r} 459 \\ 3 \overline{) 1377} \end{array}$$

**n)**  $450,400 \div 800 =$

$=$    $=$

$$\begin{array}{r} 563 \\ 8 \overline{) 4504} \end{array}$$

**o)**  $142,200 \div 600 =$

$=$    $=$

$$\begin{array}{r} 237 \\ 6 \overline{) 1422} \end{array}$$

**Skill 1.7** Dividing a whole number by a two-digit number (1).

- Work from left to right.
- Break down the division into smaller divisions by dividing into only as many digits as you need to get an answer greater than 1.
- It may be difficult, so guess the number of divisions and multiply your guess to check.
- Subtract your answer from the original number to get the remainder, which must be less than the number you are dividing by.
- Continue in this way by bringing down the next digit to make the next number to divide into.
- Repeat until the result of the subtraction is zero.

**Q.**  $1026 \div 19 =$

**A.** 54

$$\begin{array}{r} \phantom{0}54 \\ 19 \overline{) 1026} \\ \underline{-95} \phantom{0} \\ \phantom{0}76 \\ \underline{-76} \\ \phantom{000}0 \end{array}$$

Start at the left.

1 and 10 are too small to divide 19 into and get a result greater than 1.

Divide  $102 \div 19 = ?$

19 is nearly 20 so 5 is a good guess.

Check by multiplying  $5 \times 19 = 95$

Subtract  $102 - 95 = 7$

Write 5 above the 2.

Bring down the 6

Divide  $76 \div 19 = ?$  (Guess 4)

Check by multiplying  $4 \times 19 = 76$

Subtract  $76 - 76 = 0$  (No remainder)

Write 4 above the 6.

OR Work as a short division.

$$\begin{array}{r} \phantom{0}54 \\ 19 \overline{) 1026} \end{array}$$

**a)**  $476 \div 17 =$

28

$$\begin{array}{r} \phantom{0}28 \\ 17 \overline{) 476} \\ \underline{-34} \phantom{0} \\ \phantom{0}136 \\ \underline{-136} \\ \phantom{000}0 \end{array}$$

**b)**  $546 \div 13 =$

$$\begin{array}{r} \phantom{0}42 \\ 13 \overline{) 546} \\ \underline{-52} \phantom{0} \\ \phantom{0}26 \\ \underline{-26} \\ \phantom{000}0 \end{array}$$

**c)**  $645 \div 15 =$

$$\begin{array}{r} \phantom{0}43 \\ 15 \overline{) 645} \\ \underline{-60} \phantom{0} \\ \phantom{0}45 \\ \underline{-45} \\ \phantom{000}0 \end{array}$$

**d)**  $792 \div 12 =$

$$\begin{array}{r} \phantom{0}66 \\ 12 \overline{) 792} \\ \underline{-72} \phantom{0} \\ \phantom{0}66 \\ \underline{-66} \\ \phantom{000}0 \end{array}$$

**e)**  $728 \div 14 =$

$$\begin{array}{r} \phantom{0}52 \\ 14 \overline{) 728} \\ \underline{-70} \phantom{0} \\ \phantom{0}28 \\ \underline{-28} \\ \phantom{000}0 \end{array}$$

**f)**  $578 \div 17 =$

$$\begin{array}{r} \phantom{0}34 \\ 17 \overline{) 578} \\ \underline{-51} \phantom{0} \\ \phantom{0}68 \\ \underline{-68} \\ \phantom{000}0 \end{array}$$

**Skill 1.7** Dividing a whole number by a two-digit number (2).

g)  $609 \div 21 =$

$$\begin{array}{r} \phantom{2}9 \\ 21 \overline{) 609} \\ \underline{-42} \phantom{0} \\ 189 \\ \underline{-189} \\ 0 \end{array}$$

h)  $825 \div 25 =$

$$\begin{array}{r} \phantom{3} \\ 25 \overline{) 825} \\ \underline{-75} \phantom{0} \\ 50 \\ \underline{-50} \\ 0 \end{array}$$

i)  $504 \div 14 =$

$$\begin{array}{r} \phantom{3} \\ 14 \overline{) 504} \\ \underline{-42} \phantom{0} \\ 84 \\ \underline{-84} \\ 0 \end{array}$$

j)  $432 \div 18 =$

$$\begin{array}{r} \phantom{2} \\ 18 \overline{) 432} \\ \underline{-36} \phantom{0} \\ 72 \\ \underline{-72} \\ 0 \end{array}$$

k)  $848 \div 16 =$

$$\begin{array}{r} \phantom{5} \\ 16 \overline{) 848} \\ \underline{-80} \phantom{0} \\ 48 \\ \underline{-48} \\ 0 \end{array}$$

l)  $814 \div 22 =$

$$\begin{array}{r} \phantom{3} \\ 22 \overline{) 814} \\ \underline{-66} \phantom{0} \\ 154 \\ \underline{-154} \\ 0 \end{array}$$

m)  $8055 \div 15 =$

$$\begin{array}{r} \phantom{5} \\ 15 \overline{) 8055} \\ \underline{-75} \phantom{0} \\ 55 \\ \underline{-45} \phantom{0} \\ 105 \\ \underline{-90} \phantom{0} \\ 155 \\ \underline{-150} \\ 5 \end{array}$$

n)  $1022 \div 14 =$

$$\begin{array}{r} \phantom{7} \\ 14 \overline{) 1022} \\ \underline{-98} \phantom{0} \\ 42 \\ \underline{-42} \\ 0 \end{array}$$

o)  $3870 \div 18 =$

$$\begin{array}{r} \phantom{2} \\ 18 \overline{) 3870} \\ \underline{-36} \phantom{0} \\ 27 \\ \underline{-27} \phantom{0} \\ 0 \end{array}$$

p)  $2686 \div 17 =$

$$\begin{array}{r} \phantom{1} \\ 17 \overline{) 2686} \\ \underline{-17} \phantom{0} \\ 98 \\ \underline{-91} \phantom{0} \\ 76 \\ \underline{-76} \\ 0 \end{array}$$

q)  $2337 \div 19 =$

$$\begin{array}{r} \phantom{1} \\ 19 \overline{) 2337} \\ \underline{-19} \phantom{0} \\ 43 \\ \underline{-38} \phantom{0} \\ 57 \\ \underline{-57} \\ 0 \end{array}$$

r)  $2608 \div 16 =$

$$\begin{array}{r} \phantom{1} \\ 16 \overline{) 2608} \\ \underline{-16} \phantom{0} \\ 100 \\ \underline{-96} \phantom{0} \\ 48 \\ \underline{-48} \\ 0 \end{array}$$

**Skill 1.8** Dividing whole numbers - answer as a terminating decimal.

- Place a decimal point and more zeros at the end of the whole number.
- Divide into the whole number and continue until you get an exact division with no remainder.
- Line up the decimal point in your answer.

**Q.**  $3948 \div 8 =$

**A.**  $493.5$

$$\begin{array}{r} 493.5 \\ 8 \overline{) 3948.0} \end{array}$$

Divide 8 into 3948.0

Continue until you get an exact number with no remainder.

**a)**  $639 \div 5 =$

**127.8**

$$\begin{array}{r} 127.8 \\ 5 \overline{) 639.0} \end{array}$$

**b)**  $315 \div 6 =$

$$\begin{array}{r} 52.5 \\ 6 \overline{) 315.0} \end{array}$$

**c)**  $366 \div 5 =$

$$\begin{array}{r} 73.2 \\ 5 \overline{) 366.0} \end{array}$$

**d)**  $1379 \div 2 =$

$$\begin{array}{r} 689.5 \\ 2 \overline{) 1379.0} \end{array}$$

**e)**  $4572 \div 8 =$

$$\begin{array}{r} 571.5 \\ 8 \overline{) 4572.0} \end{array}$$

**f)**  $835 \div 4 =$

$$\begin{array}{r} 208.75 \\ 4 \overline{) 835.00} \end{array}$$

**g)**  $233 \div 4 =$

$$\begin{array}{r} 58.25 \\ 4 \overline{) 233.00} \end{array}$$

**h)**  $590 \div 8 =$

$$\begin{array}{r} 73.75 \\ 8 \overline{) 590.00} \end{array}$$

**i)**  $2058 \div 12 =$

$$\begin{array}{r} 171.5 \\ 12 \overline{) 2058.00} \end{array}$$

**j)**  $1706 \div 20 =$

$$\begin{array}{r} 85.3 \\ 20 \overline{) 1706.0} \\ - \phantom{00} \\ \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ - \phantom{00} \\ \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ - \phantom{00} \\ \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ - \phantom{00} \\ \phantom{0} \phantom{0} \phantom{0} \phantom{0} \end{array}$$

**k)**  $5187 \div 15 =$

$$\begin{array}{r} 345.8 \\ 15 \overline{) 5187.0} \\ - \phantom{00} \\ \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ - \phantom{00} \\ \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ - \phantom{00} \\ \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ - \phantom{00} \\ \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ - \phantom{00} \\ \phantom{0} \phantom{0} \phantom{0} \phantom{0} \end{array}$$

**l)**  $988 \div 16 =$

$$\begin{array}{r} 61.75 \\ 16 \overline{) 988.00} \\ - \phantom{00} \\ \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ - \phantom{00} \\ \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ - \phantom{00} \\ \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ - \phantom{00} \\ \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ - \phantom{00} \\ \phantom{0} \phantom{0} \phantom{0} \phantom{0} \end{array}$$

