

1. [Long \times, \div]

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

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

- Consider the zeros as making groups of 10s or 100s 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) $58 \times 90 =$

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

c) $74 \times 60 =$

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

d) $89 \times 70 =$

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

e) $483 \times 50 =$

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

f) $790 \times 80 =$

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

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) $647 \times 400 =$

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

i) $2596 \times 200 =$

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

j) $1516 \times 300 =$

k) $310 \times 2000 =$

l) $475 \times 2000 =$

Skill 1.2 Multiplying a large number by a two-digit number (1).

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

- Multiply by the units first.
- Then multiply by the tens.

Reminder: Put a zero in the units place before you start multiplying by the tens.

Q. $564 \times 18 =$

A. **10152**

$$\begin{array}{r} \begin{array}{r} \overset{5}{5} \overset{3}{6} 4 \\ \times 18 \\ \hline 4512 \\ + 5640 \\ \hline 10152 \end{array} \end{array}$$

Multiply 564 by 8.

Then multiply 564 by 10.

Remember: Put a 0 in the units place.

Add the results.

This question can be thought of as:

$$\begin{array}{r} \begin{array}{r} \overset{5}{5} \overset{3}{6} 4 \\ \times 8 \\ \hline 4512 \end{array} \text{ plus } \begin{array}{r} \overset{5}{5} \overset{6}{6} 4 \\ \times 10 \\ \hline 5640 \end{array} = 10152 \end{array}$$

a) $19 \times 15 =$

285

b) $27 \times 13 =$

c) $34 \times 18 =$

$$\begin{array}{r} \begin{array}{r} \overset{4}{1} 9 \\ \times 15 \\ \hline 95 \\ + 190 \\ \hline 285 \end{array} \end{array}$$

$$\begin{array}{r} \begin{array}{r} \overset{2}{2} 7 \\ \times 13 \\ \hline 81 \\ \hline \end{array} \end{array}$$

$$\begin{array}{r} \begin{array}{r} \overset{3}{3} 4 \\ \times 18 \\ \hline \\ \hline \end{array} \end{array}$$

d) $56 \times 14 =$

e) $274 \times 17 =$

f) $456 \times 19 =$

$$\begin{array}{r} \begin{array}{r} 56 \\ \times 14 \\ \hline \\ \hline \end{array} \end{array}$$

$$\begin{array}{r} \begin{array}{r} 274 \\ \times 17 \\ \hline \\ \hline \end{array} \end{array}$$

$$\begin{array}{r} \begin{array}{r} 456 \\ \times 19 \\ \hline \\ \hline \end{array} \end{array}$$

g) $249 \times 36 =$

h) $237 \times 28 =$

i) $413 \times 56 =$

$$\begin{array}{r} \begin{array}{r} 249 \\ \times 36 \\ \hline \\ \hline \end{array} \end{array}$$

$$\begin{array}{r} \begin{array}{r} 237 \\ \times 28 \\ \hline \\ \hline \end{array} \end{array}$$

$$\begin{array}{r} \begin{array}{r} 413 \\ \times 56 \\ \hline \\ \hline \end{array} \end{array}$$

Skill 1.2 Multiplying a large number by a two-digit number (2).

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

j) $289 \times 47 =$

		6	6	
		2	8	9
	x	3	3	4
		4	7	
<hr/>				
+	(2	0	2
		3	6	0
<hr/>				
		1	3	5
		8	3	
<hr/>				

k) $873 \times 35 =$

		8	7	3
	x	3	5	
<hr/>				
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l) $456 \times 64 =$

		4	5	6
	x	6	4	
<hr/>				
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m) $516 \times 33 =$

n) $934 \times 78 =$

o) $689 \times 56 =$

p) $2009 \times 96 =$

		2	0	0	9
	x	9	6		
<hr/>					
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q) $1087 \times 37 =$

		1	0	8	7
	x	3	7		
<hr/>					
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r) $3265 \times 73 =$

		3	2	6	5
	x	7	3		
<hr/>					
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s) $1989 \times 43 =$

t) $2701 \times 84 =$

u) $5678 \times 92 =$

Skill 1.3 Multiplying a large number by a large multiple of 10.

MM5.2 11 22 33 44
MM6.1 11 22 33 44

- Consider the zeros as making groups of 10's or 100's and place them at the end.
- Multiply by the units first, then by the tens.

Q. $382 \times 230 =$

A. 87860

$$\begin{array}{r} 382 \\ \times 230 \\ \hline 1146 \\ 7640 \\ \hline 87860 \end{array}$$

Consider 230 as 23 groups of 10.

Work with the 23 first.
Multiply 382 by 3.
Then multiply 382 by 20.
Add these results.

To show we want groups of 10,
place a 0 after the 8786.

a) $358 \times 130 =$

$$\begin{array}{r} 358 \\ \times 130 \\ \hline 1074 \\ 3580 \\ \hline 46540 \end{array}$$

b) $469 \times 210 =$

$$\begin{array}{r} 469 \\ \times 210 \\ \hline 0 \\ 0 \\ \hline 0 \end{array}$$

c) $325 \times 180 =$

$$\begin{array}{r} 325 \\ \times 180 \\ \hline 0 \\ 0 \\ \hline 0 \end{array}$$

d) $637 \times 140 =$

$$\begin{array}{r} 637 \\ \times 140 \\ \hline 0 \\ 0 \\ \hline 0 \end{array}$$

e) $428 \times 230 =$

$$\begin{array}{r} 428 \\ \times 230 \\ \hline 0 \\ 0 \\ \hline 0 \end{array}$$

f) $1865 \times 390 =$

$$\begin{array}{r} 1865 \\ \times 390 \\ \hline 0 \\ 0 \\ \hline 0 \end{array}$$

g) $2904 \times 420 =$

$$\begin{array}{r} 2904 \\ \times 420 \\ \hline 0 \\ 0 \\ \hline 0 \end{array}$$

h) $263 \times 1500 =$

$$\begin{array}{r} 263 \\ \times 1500 \\ \hline 00 \\ 00 \\ \hline 00 \end{array}$$

i) $457 \times 1800 =$

$$\begin{array}{r} 457 \\ \times 1800 \\ \hline 00 \\ 00 \\ \hline 00 \end{array}$$

Skill 1.4 Dividing a large number by a single digit.

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

- 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 does not 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 does not 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) $9048 \div 8 =$

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

Skill 1.5 Dividing a large number by a power of 10.

MM5.2 1 1 22 33 44
MM6.1 1 1 22 33 44

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

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. $48\ 670 \div 1000$
 $= 48670.0 \div 1000$
 $= 48.\overline{670}$
 $= 48.67$

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) $12\ 000 \div 100 =$

$= 12\ 000 \div 100 =$

b) $15\ 000 \div 10 =$

$=$ $=$

c) $13\ 500 \div 10 =$

$=$ $=$

d) $98\ 200 \div 100 =$

$=$ $=$

e) $3200 \div 100 =$

$=$ $=$

f) $80\ 000 \div 100 =$

$=$ $=$

g) $543 \div 10 =$

$= 54.\overline{3} =$

h) $278 \div 10 =$

$=$ $=$

i) $5466 \div 10 =$

$=$ $=$

j) $6450 \div 100 =$

$=$ $=$

k) $43\ 070 \div 100 =$

$=$ $=$

l) $5507 \div 100 =$

$=$ $=$

m) $19\ 034 \div 100 =$

$=$ $=$

n) $23\ 790 \div 1000 =$

$=$ $=$

o) $42\ 210 \div 1000 =$

$=$ $=$

Skill 1.6 Dividing a large number by a multiple of 10.

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

- 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 single digit.

Q. $34780 \div 20 =$

A. $34780 \div 20$
 $= 3478\cancel{0} \div 2\cancel{0}$
 $= 1739$

Divide both numbers by 10 to remove the zeros.

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

Then complete the division.

a) $2460 \div 30 =$

$= 246\cancel{0} \div 3\cancel{0} =$ 82

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

b) $1760 \div 20 =$

$= 176\cancel{0} \div 2\cancel{0} =$ 88

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

c) $6950 \div 50 =$

$=$ 139

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

d) $5480 \div 40 =$

$=$ 137

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

e) $9660 \div 70 =$

$=$ 138

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

f) $8220 \div 30 =$

$=$ 274

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

g) $39120 \div 40 =$

$= 3912\cancel{0} \div 4\cancel{0} =$ 978

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

h) $75980 \div 20 =$

$=$ 3799

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

i) $37550 \div 50 =$

$=$ 751

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

j) $21420 \div 60 =$

$=$ 357

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

k) $50080 \div 80 =$

$=$ 626

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

l) $52380 \div 90 =$

$=$ 582

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

m) $137700 \div 300 =$

$=$ 459

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

n) $450400 \div 800 =$

$=$ 563

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

o) $142200 \div 600 =$

$=$ 237

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

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

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

g) $609 \div 21 =$

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

h) $825 \div 25 =$

$$\begin{array}{r} \overline{25 \overline{) 825}} \\ \underline{-75} \\ 70 \\ \underline{-70} \\ 0 \end{array}$$

i) $504 \div 14 =$

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

j) $432 \div 18 =$

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

k) $848 \div 16 =$

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

l) $814 \div 22 =$

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

m) $8055 \div 15 =$

$$\begin{array}{r} \overline{15 \overline{) 8055}} \\ \underline{-75} \\ 55 \\ \underline{-52} \\ 35 \\ \underline{-30} \\ 55 \\ \underline{-52} \\ 35 \\ \underline{-30} \\ 55 \\ \underline{-52} \\ 35 \\ \underline{-30} \\ 55 \end{array}$$

n) $1022 \div 14 =$

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

o) $3870 \div 18 =$

$$\begin{array}{r} \overline{18 \overline{) 3870}} \\ \underline{-36} \\ 270 \\ \underline{-270} \\ 0 \end{array}$$

p) $2686 \div 17 =$

$$\begin{array}{r} \overline{17 \overline{) 2686}} \\ \underline{-17} \\ 986 \\ \underline{-90} \\ 86 \\ \underline{-85} \\ 16 \\ \underline{-15} \\ 16 \\ \underline{-15} \\ 16 \\ \underline{-15} \\ 16 \end{array}$$

q) $2337 \div 19 =$

$$\begin{array}{r} \overline{19 \overline{) 2337}} \\ \underline{-19} \\ 437 \\ \underline{-38} \\ 57 \\ \underline{-57} \\ 0 \end{array}$$

r) $2608 \div 16 =$

$$\begin{array}{r} \overline{16 \overline{) 2608}} \\ \underline{-16} \\ 1008 \\ \underline{-96} \\ 48 \\ \underline{-48} \\ 0 \end{array}$$

Skill 1.9 Dividing whole numbers - recurring remainder.

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

- Place a decimal point and more zeros at the end of the whole number.
- Divide into the whole number and continue until:
The last digit keeps repeating - place a dot above the recurring digit.
Two or more digits repeat in a pattern - place a dot above the pattern of recurring digits.
- Line up the decimal point in your answer.

Q. $698 \div 6 =$

A. $116.\dot{3}$

$$6 \overline{) 698.333}$$

Divide 6 into 698.000 using as many zeros as you like.

Continue until you are sure of the pattern of the remainder.

a) $650 \div 9 =$

$72.\dot{2}$

b) $445 \div 3 =$

c) $370 \div 6 =$

$$9 \overline{) 650.222}$$

$$3 \overline{) 445.00}$$

$$6 \overline{) 370.00}$$

d) $434 \div 3 =$

e) $938 \div 6 =$

f) $962 \div 9 =$

$$3 \overline{) 434.}$$

$$6 \overline{) 938.}$$

$$9 \overline{) 962}$$

g) $5870 \div 6 =$

h) $1304 \div 9 =$

i) $985 \div 11 =$

$89.\dot{5}\dot{4}$

$$6 \overline{) 5870}$$

$$9 \overline{) 1304}$$

$$11 \overline{) 985.5454}$$

j) $1547 \div 21 =$

k) $754 \div 22 =$

l) $4586 \div 15 =$

$$\begin{array}{r} 21 \overline{) 1547} \\ - \\ \hline - \\ \hline - \\ \hline - \\ \hline - \\ \hline \end{array}$$

$$\begin{array}{r} 22 \overline{) 754} \\ - \\ \hline - \\ \hline - \\ \hline - \\ \hline - \\ \hline \end{array}$$

$$\begin{array}{r} 15 \overline{) 4586} \\ - \\ \hline - \\ \hline - \\ \hline - \\ \hline - \\ \hline \end{array}$$