

8. [Large Number ×]

Skill 8.1 Multiplying a large number by a single digit without carry over, using columns.

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

- Keep the units, tens, hundreds and thousands in their own columns.
- Work from right to left.

Q.

$$\begin{array}{r} 312 \\ \times 3 \\ \hline \end{array}$$

A.

hundreds	tens	units	
3	1	2	
×		3	
9	3	6	Units first!

Units:
 $3 \times 2 = 6 \Rightarrow 6$ units

Tens:
 $3 \times 1 = 3 \Rightarrow 3$ tens

Hundreds:
 $3 \times 3 = 9 \Rightarrow 9$ hundreds

a)

$$\begin{array}{r} 97 \\ \times 1 \\ \hline \end{array}$$

97

Units first!

b)

$$\begin{array}{r} 22 \\ \times 4 \\ \hline \end{array}$$

c)

$$\begin{array}{r} 23 \\ \times 3 \\ \hline \end{array}$$

d)

$$\begin{array}{r} 68 \\ \times 1 \\ \hline \end{array}$$

e)

$$\begin{array}{r} 32 \\ \times 3 \\ \hline \end{array}$$

f)

$$\begin{array}{r} 41 \\ \times 2 \\ \hline \end{array}$$

g)

$$\begin{array}{r} 43 \\ \times 2 \\ \hline \end{array}$$

h)

$$\begin{array}{r} 32 \\ \times 2 \\ \hline \end{array}$$

i)

$$\begin{array}{r} 123 \\ \times 3 \\ \hline \end{array}$$

369

Units first!

j)

$$\begin{array}{r} 332 \\ \times 2 \\ \hline \end{array}$$

k)

$$\begin{array}{r} 808 \\ \times 1 \\ \hline \end{array}$$

l)

$$\begin{array}{r} 112 \\ \times 3 \\ \hline \end{array}$$

m)

$$\begin{array}{r} 340 \\ \times 2 \\ \hline \end{array}$$

n)

$$\begin{array}{r} 131 \\ \times 3 \\ \hline \end{array}$$

o)

$$\begin{array}{r} 413 \\ \times 2 \\ \hline \end{array}$$

p)

$$\begin{array}{r} 322 \\ \times 3 \\ \hline \end{array}$$

Skill 8.2

Multiplying a large number by a single digit with carry over, using columns.

- Keep the units, tens, hundreds and thousands in their own columns.
- Work from right to left.
- If there is a 'carry over': First multiply. Then add on the carry over.

Q.

$$\begin{array}{r} 119 \\ \times 8 \\ \hline \end{array}$$

A.

	hundreds	tens	units
	1	7	9
	1	1	9
×			8
	9	5	2

Units first!

Units:

$8 \times 9 = 72$

$72 \text{ units} = 7 \text{ tens and } 2 \text{ units} \Rightarrow 2 \text{ units}$

Carry over the 7 tens to the tens column.

Tens:

$8 \times 1 = 8$

$8 + 7 \text{ (carry over)} = 15$

$15 \text{ tens} = 1 \text{ hundred and } 5 \text{ tens} \Rightarrow 5 \text{ tens}$

Carry over the 1 hundred to the hundreds column.

Hundreds:

$8 \times 1 = 8$

$8 + 1 \text{ (carry over)} = 9 \Rightarrow 9 \text{ hundreds}$

a)

$$\begin{array}{r} 480 \\ \times 5 \\ \hline \end{array}$$

Units first!

b)

$$\begin{array}{r} 90 \\ \times 4 \\ \hline \end{array}$$

c)

$$\begin{array}{r} 94 \\ \times 2 \\ \hline \end{array}$$

d)

$$\begin{array}{r} 15 \\ \times 3 \\ \hline \end{array}$$

e)

$$\begin{array}{r} 26 \\ \times 3 \\ \hline \end{array}$$

f)

$$\begin{array}{r} 23 \\ \times 7 \\ \hline \end{array}$$

g)

$$\begin{array}{r} 43 \\ \times 5 \\ \hline \end{array}$$

h)

$$\begin{array}{r} 82 \\ \times 6 \\ \hline \end{array}$$

i)

$$\begin{array}{r} 164 \\ \times 2 \\ \hline \end{array}$$

Units first!

j)

$$\begin{array}{r} 207 \\ \times 5 \\ \hline \end{array}$$

k)

$$\begin{array}{r} 109 \\ \times 7 \\ \hline \end{array}$$

l)

$$\begin{array}{r} 208 \\ \times 4 \\ \hline \end{array}$$

m)

$$\begin{array}{r} 140 \\ \times 6 \\ \hline \end{array}$$

n)

$$\begin{array}{r} 167 \\ \times 3 \\ \hline \end{array}$$

o)

$$\begin{array}{r} 410 \\ \times 8 \\ \hline \end{array}$$

p)

$$\begin{array}{r} 422 \\ \times 5 \\ \hline \end{array}$$

- Keep the units, tens, hundreds and thousands in their own columns.
- Work from right to left.
- First multiply by the unit. Then multiply by the ten.
- Do the addition last.

Q.

$$\begin{array}{r} 85 \\ \times 14 \\ \hline \end{array}$$

A.

	thousands	hundreds	tens	units
			2	
			8	5
×			1	4
			3	4
			0	
			2	
			8	5
×			1	4
			7	3
			4	0
			8	5
			1	1
			9	0

First multiply 85 by the 4 units.

Units:

$4 \times 5 = 20$

20 units = 2 tens and 0 units \Rightarrow 0 units

Carry over the 2 tens to the tens column.

Tens:

$4 \times 8 = 32$

32 + 2 (carry over) = 34

34 tens = 3 hundreds and 4 tens \Rightarrow 4 tens

Hundreds:

\Rightarrow 3 hundreds

Then multiply 85 by the 1 ten.

Units:

Write 0 as a place holder for the ten.

\Rightarrow 0 units

Tens:

$1 \times 5 = 5$

\Rightarrow 5 tens

Hundreds:

$1 \times 8 = 8$

\Rightarrow 8 hundreds

Add these results: $340 + 850 = 1190$

a)

$$\begin{array}{r} 34 \\ \times 21 \\ \hline 7 \ 34 \\ 680 \\ \hline 714 \end{array}$$

b)

$$\begin{array}{r} 15 \\ \times 32 \\ \hline 30 \\ \hline \end{array}$$

c)

$$\begin{array}{r} 24 \\ \times 43 \\ \hline \end{array}$$

d)

$$\begin{array}{r} 71 \\ \times 62 \\ \hline \end{array}$$

e)

$$\begin{array}{r} 55 \\ \times 45 \\ \hline \end{array}$$

f)

$$\begin{array}{r} 82 \\ \times 73 \\ \hline \end{array}$$

g)

$$\begin{array}{r} 46 \\ \times 38 \\ \hline \end{array}$$

h)

$$\begin{array}{r} 33 \\ \times 96 \\ \hline \end{array}$$