

8. [Decimal \times, \div]

Skill 8.1 Multiplying a decimal number by a single digit number (1).

MM4.2 1 2 3 4 4
MM5.1 1 2 3 3 4 4

- Multiply from right to left, disregarding the decimal point.
- Count the number of places to the right of the decimal point in the question.
- Position the decimal point the same number of places from the right in the answer.

Q. $0.62 \times 4 =$

A. $0.62 \times 4 = 2.48$

$$\begin{array}{r} 0.62 \\ \times 4 \\ \hline 2.48 \end{array}$$

$4 \times 2 = 8$

write 8

$4 \times 6 = 24$

carry 2, write 4

$4 \times 0 + \text{carry } 2 = 2$

write 2

2 decimal places in question so
move decimal point 2 places from right in the answer

a) $0.9 \times 3 =$

2.7

$$\begin{array}{r} 0.9 \\ \times 3 \\ \hline 2.7 \end{array}$$

b) $0.8 \times 2 =$

$$\begin{array}{r} 0.8 \\ \times 2 \\ \hline \end{array}$$

c) $0.7 \times 5 =$

$$\begin{array}{r} 0.7 \\ \times 5 \\ \hline \end{array}$$

d) $0.4 \times 6 =$

$$\begin{array}{r} 0.4 \\ \times 6 \\ \hline \end{array}$$

e) $0.3 \times 7 =$

$$\begin{array}{r} 0.3 \\ \times 7 \\ \hline \end{array}$$

f) $0.6 \times 9 =$

$$\begin{array}{r} 0.6 \\ \times 9 \\ \hline \end{array}$$

g) $5.1 \times 3 =$

$$\begin{array}{r} 5.1 \\ \times 3 \\ \hline \end{array}$$

h) $4.3 \times 6 =$

$$\begin{array}{r} 4.3 \\ \times 6 \\ \hline \end{array}$$

i) $2.7 \times 4 =$

$$\begin{array}{r} 2.7 \\ \times 4 \\ \hline \end{array}$$

j) $3.8 \times 2 =$

$$\begin{array}{r} 3.8 \\ \times 2 \\ \hline \end{array}$$

k) $1.9 \times 5 =$

$$\begin{array}{r} 1.9 \\ \times 5 \\ \hline \end{array}$$

l) $7.3 \times 8 =$

$$\begin{array}{r} 7.3 \\ \times 8 \\ \hline \end{array}$$

Skill 8.1 Multiplying a decimal number by a single digit number (2).

MM4.2 1 1 2 2 3 3 4 4
MM5.1 1 1 2 2 3 3 4 4

m) $0.24 \times 5 =$

$$\begin{array}{r} 0.24 \\ \times 5 \\ \hline 1.20 \end{array}$$

n) $0.71 \times 6 =$

$$\begin{array}{r} 0.71 \\ \times 6 \\ \hline \end{array}$$

o) $1.56 \times 8 =$

$$\begin{array}{r} 1.56 \\ \times 8 \\ \hline \end{array}$$

p) $2.09 \times 4 =$

$$\begin{array}{r} 2.09 \\ \times 4 \\ \hline \end{array}$$

q) $3.26 \times 3 =$

$$\begin{array}{r} 3.26 \\ \times 3 \\ \hline \end{array}$$

r) $4.82 \times 2 =$

$$\begin{array}{r} 4.82 \\ \times 2 \\ \hline \end{array}$$

s) $14.02 \times 6 =$

$$\begin{array}{r} 14.02 \\ \times 6 \\ \hline \end{array}$$

t) $4 \times 20.15 =$

$$\begin{array}{r} 20.15 \\ \times 4 \\ \hline \end{array}$$

u) $18.02 \times 3 =$

$$\begin{array}{r} 18.02 \\ \times 3 \\ \hline \end{array}$$

v) $8 \times 10.91 =$

$$\begin{array}{r} 10.91 \\ \times 8 \\ \hline \end{array}$$

w) $2.008 \times 7 =$

$$\begin{array}{r} 2.008 \\ \times 7 \\ \hline \end{array}$$

x) $6 \times 0.521 =$

$$\begin{array}{r} 0.521 \\ \times 6 \\ \hline \end{array}$$

y) $5 \times 3.105 =$

$$\begin{array}{r} 3.105 \\ \times 5 \\ \hline \end{array}$$

z) $5.312 \times 4 =$

$$\begin{array}{r} 5.312 \\ \times 4 \\ \hline \end{array}$$

A) $3 \times 2.041 =$

$$\begin{array}{r} 2.041 \\ \times 3 \\ \hline \end{array}$$

Skill 8.2 Dividing a decimal number by a single digit number.

MM4.2 11 2 2 3 3 4 4
MM5.1 11 2 2 3 3 4 4

- Line up the decimal point in your answer with the decimal point in the question.
- Divide from left to right.
- Break down the division into smaller divisions.
- If any result is less than 1: Cross off the number being divided into. 'Carry over' this amount to the next column. Add on the carry. Then try dividing again.

Q. $1.26 \div 9 =$

A. $1.26 \div 9 = 0.14$

$1 \div 9 = ?$ (less than 0) carry 1, write 0
Line up the decimal point.

$12 \div 9 = 1$

carry 3, write 1

$36 \div 9 = 4$

write 4

$$\begin{array}{r} 0.14 \\ 9 \overline{) 1.26} \end{array}$$

a) $4.2 \div 6 =$

0.7

b) $2.4 \div 8 =$

c) $1.5 \div 3 =$

÷ from left

$$\begin{array}{r} 0.7 \\ 6 \overline{) 4.2} \end{array}$$

Line up decimal points

$$\begin{array}{r} \\ 8 \overline{) 2.4} \end{array}$$

$$\begin{array}{r} \\ 3 \overline{) 1.5} \end{array}$$

d) $6.5 \div 5 =$

e) $7.2 \div 4 =$

f) $9.8 \div 7 =$

$$\begin{array}{r} \\ 5 \overline{) 6.5} \end{array}$$

$$\begin{array}{r} \\ 4 \overline{) 7.2} \end{array}$$

$$\begin{array}{r} \\ 7 \overline{) 9.8} \end{array}$$

g) $12.6 \div 9 =$

h) $1.11 \div 3 =$

i) $14.5 \div 5 =$

$$\begin{array}{r} \\ 9 \overline{) 12.6} \end{array}$$

$$\begin{array}{r} \\ 3 \overline{) 1.11} \end{array}$$

$$\begin{array}{r} \\ 5 \overline{) 14.5} \end{array}$$

j) $2.66 \div 7 =$

k) $0.96 \div 6 =$

l) $2.72 \div 8 =$

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

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

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

m) $10.4 \div 4 =$

n) $1.47 \div 3 =$

o) $23.4 \div 9 =$

$$\begin{array}{r} \\ \phantom{) } \end{array}$$

$$\begin{array}{r} \\ \phantom{) } \end{array}$$

$$\begin{array}{r} \\ \phantom{) } \end{array}$$

Skill 8.3 Multiplying a decimal number by a power of 10.

MM4.2 1 1 22 33 44
MM5.1 1 1 22 33 44

EITHER

- Count the number of zeros in the power of 10.
- Move the decimal point to the right the same number of places.
- Remove all the zeros before and after the decimal number if needed.

Example: $015.600 = 15.6$

- Add zeros as place holders if needed.

Example: $2.4 \times 100 = 2.4000 \times 100 = 240.00 = 240$

OR

- Write the number followed by the zeros, disregarding the decimal point.
- Count the number of decimal places in the question.
- Position the decimal point the same number of places from the right in the answer.

Q. $2.57 \times 1000 =$	A. $2.57 \times 1000 =$ $= 2.5700 \times 1000$ $= 2570$	<i>OR</i>	2.57 $\times 1000$ <hr/> 2570.00 $2570.00 = 2570$
			← 2 decimal places ← 2 decimal places in the answer

a) $4.6 \times 10 =$

46

$$\begin{array}{r} 4.6 \\ \times 10 \\ \hline 46.0 \end{array}$$

b) $0.8 \times 10 =$

$$\begin{array}{r} 0.8 \\ \times 10 \\ \hline 08.0 \end{array}$$

c) $5.3 \times 10 =$

$$\begin{array}{r} 5.3 \\ \times 10 \\ \hline \end{array}$$

d) $0.17 \times 10 =$

$$\begin{array}{r} 0.17 \\ \times 10 \\ \hline 01.70 \end{array}$$

e) $3.29 \times 10 =$

$$\begin{array}{r} 3.29 \\ \times 10 \\ \hline \end{array}$$

f) $8.04 \times 10 =$

$$\begin{array}{r} 8.04 \\ \times 10 \\ \hline \end{array}$$

g) $6.5 \times 100 =$

$$\begin{array}{r} 6.5 \\ \times 100 \\ \hline 650.0 \end{array}$$

h) $0.177 \times 100 =$

$$\begin{array}{r} 0.177 \\ \times 100 \\ \hline 017.700 \end{array}$$

i) $0.038 \times 100 =$

$$\begin{array}{r} 0.038 \\ \times 100 \\ \hline \end{array}$$

j) $13.2 \times 1000 =$

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

k) $7.54 \times 1000 =$

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

l) $9.06 \times 1000 =$

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

m) $83.5 \times 1000 =$

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

n) $1.02 \times 1000 =$

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

o) $7.69 \times 1000 =$

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

Skill 8.4 Dividing a decimal number by a power of 10.

MM4.2 1 1 2 2 3 3 4 4
MM5.1 1 1 2 2 3 3 4 4

- Count the number of zeros in the power of 10.
- Move the decimal point to the left the same number of places.
- Remove all the zeros before and after the decimal number if needed.

Example: $\emptyset 15.6 \emptyset \emptyset = 15.6$

- Add zeros as place holders if needed.

Example: $4.9 \div 100 = \emptyset \emptyset 4.9 \div 100 = \emptyset 0.049 = 0.049$

Q. $314.5 \div 1000 =$

A. $314.5 \div 1000 =$ ← 3 zeros in 1000
 $= \emptyset \emptyset \emptyset 314.5 \div 1000$ ← 3 places to the left
 $= 0.3145$

a) $26.7 \div 10 =$

$= \widehat{26.7} \div 10 = \boxed{2.67}$

b) $30.8 \div 10 =$

$= \widehat{30.8} \div 10 = \boxed{}$

c) $94.3 \div 10 =$

$= \widehat{94.3} \div 10 = \boxed{}$

d) $6.58 \div 10 =$

$= \widehat{06.58} \div 10 = \boxed{}$

e) $0.49 \div 10 =$

$= \widehat{00.49} \div 10 = \boxed{}$

f) $1.73 \div 10 =$

$= \widehat{01.73} \div 10 = \boxed{}$

g) $27.5 \div 100 =$

$= \widehat{027.5} \div 100 = \boxed{}$

h) $18.6 \div 100 =$

$= \widehat{018.6} \div 100 = \boxed{}$

i) $90.7 \div 100 =$

$= \widehat{090.7} \div 100 = \boxed{}$

j) $1.3 \div 100 =$

$= \widehat{001.3} \div 100 = \boxed{}$

k) $7.4 \div 100 =$

$= \widehat{007.4} \div 100 = \boxed{}$

l) $5.2 \div 100 =$

$= \widehat{005.2} \div 100 = \boxed{}$

m) $408.9 \div 100 =$

$= \widehat{408.9} \div 100 = \boxed{}$

n) $623.7 \div 100 =$

$= \widehat{623.7} \div 100 = \boxed{}$

o) $240.5 \div 100 =$

$= \widehat{240.5} \div 100 = \boxed{}$

p) $927.2 \div 1000 =$

$= \widehat{0927.2} \div 1000 = \boxed{}$

q) $103.5 \div 1000 =$

$= \widehat{0103.5} \div 1000 = \boxed{}$

r) $448.7 \div 1000 =$

$= \widehat{0448.7} \div 1000 = \boxed{}$

Skill 8.5 Multiplying a decimal number by another decimal number.

MM4.2 11 22 33 44
MM5.1 11 22 33 44

- Multiply from right to left, disregarding the decimal point.
- Count the number of places to the right of the decimal point in the question.
- Position the decimal point the same number of decimal places from the right in the answer.
- Use zeros as place holders, if necessary.
Example: $0.02 \times 0.3 = 0.006$
- If the result is less than 1, write a zero in the units place.
Example: By convention 0.37 not .37

Q. $2.5 \times 0.8 =$

A. $2.5 \times 0.8 = 2$

$8 \times 5 = 40$

carry 4, write 0

$8 \times 2 + \text{carry } 4 = 20$

write 20

$$\begin{array}{r} 2.5 \\ \times 0.8 \\ \hline 2.00 \end{array}$$

2 decimal places in question so
move decimal point 2 places from right in the answer

a) $0.8 \times 0.9 =$

0.72

$$\begin{array}{r} 0.8 \\ \times 0.9 \\ \hline 0.72 \end{array}$$

b) $0.3 \times 0.4 =$

$$\begin{array}{r} 0.3 \\ \times 0.4 \\ \hline \end{array}$$

c) $0.5 \times 0.8 =$

$$\begin{array}{r} 0.5 \\ \times 0.8 \\ \hline \end{array}$$

d) $0.7 \times 0.6 =$

$$\begin{array}{r} 0.7 \\ \times 0.6 \\ \hline \end{array}$$

e) $0.9 \times 0.4 =$

$$\begin{array}{r} 0.9 \\ \times 0.4 \\ \hline \end{array}$$

f) $1.2 \times 0.6 =$

$$\begin{array}{r} 1.2 \\ \times 0.6 \\ \hline \end{array}$$

g) $1.4 \times 0.7 =$

$$\begin{array}{r} 1.4 \\ \times 0.7 \\ \hline \end{array}$$

h) $2.3 \times 0.9 =$

$$\begin{array}{r} 2.3 \\ \times 0.9 \\ \hline \end{array}$$

i) $1.6 \times 0.3 =$

$$\begin{array}{r} 1.6 \\ \times 0.3 \\ \hline \end{array}$$

j) $0.5 \times 0.06 =$

0.03

$$\begin{array}{r} 0.5 \\ \times 0.06 \\ \hline 0.030 \end{array}$$

remove unnecessary zero

< 1 so write zero in units place

k) $0.16 \times 0.3 =$

$$\begin{array}{r} 0.16 \\ \times 0.3 \\ \hline \end{array}$$

l) $1.07 \times 0.9 =$

$$\begin{array}{r} 1.07 \\ \times 0.9 \\ \hline \end{array}$$

Skill 8.6 Dividing a decimal number by another decimal number.

MM4.2 1 1 2 2 3 3 4 4
MM5.1 1 1 2 2 3 3 4 4

- Move the decimal point to the right in the divisor, as many places as you need to make it a whole number.
- Then move the decimal point the same number of places to the right in the dividend.

Example: $0.5\widehat{6} \div 0.8\widehat{1} = 5.6 \div 8 = 0.7$

- Add zeros as place holders, if necessary.

Example: $4.9 \div 0.07 = 4.9\widehat{0} \div 0.07\widehat{1} = 490 \div 7 = 70$

- Line up the decimal point in your answer with the decimal point in the question.
- Divide from left to right. (see skill 8.2, page 35)

Q. $0.63 \div 0.7 =$

A. $0.6\widehat{3} \div 0.7\widehat{1} =$
 $= 6.3 \div 7$
 $= 0.9$

$$\begin{array}{r} 0.9 \\ 7 \overline{) 6.3} \end{array}$$

$6 \div 7 = ?$ (less than 0) carry 6, write 0
 Line up the decimal point.
 $63 \div 7 = 9$ write 9

a) $3.6 \div 0.6 =$

1 place right makes a whole number
 $= 36 \div 6 = \boxed{6}$

$$\begin{array}{r} 6 \\ 3 \overline{) 36} \end{array}$$

b) $1.4 \div 0.7 =$

$= \dots = \boxed{}$

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

c) $4.5 \div 0.9 =$

$= \dots = \boxed{}$

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

d) $7.6 \div 0.2 =$

$= \dots = \boxed{}$

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

e) $6.9 \div 0.3 =$

$= \dots = \boxed{}$

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

f) $0.76 \div 0.4 =$

$= \dots = \boxed{}$

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

g) $0.08 \div 0.4 =$

$= \dots = \boxed{}$

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

h) $0.49 \div 0.7 =$

$= \dots = \boxed{}$

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

i) $6.42 \div 0.6 =$

$= \dots = \boxed{}$

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

j) $9.5 \div 0.05 =$

$= 950 \div 5 = \boxed{}$

$$\begin{array}{r} \\ 5 \overline{) 950} \end{array}$$

k) $2.7 \div 0.09 =$

$= \dots = \boxed{}$

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

l) $7.2 \div 0.08 =$

$= \dots = \boxed{}$

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

m) $6.4 \div 0.04 =$

$= \dots = \boxed{}$

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

n) $4.5 \div 0.05 =$

$= \dots = \boxed{}$

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

o) $9.6 \div 0.06 =$

$= \dots = \boxed{}$

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

Skill 8.7 Dividing a whole number by a decimal number.

MM4.2 11 22 33 44
MM5.1 11 22 33 44

- Move the decimal point to the right in the divisor, as many places as you need to make a whole number.
- Then move the decimal point the same number of places to the right in the dividend.
- Add zeros as place holders.

Example: $16 \div 0.4 = 16.\widehat{0} \div 0.\widehat{4} = 160 \div 4 = 40$

- Divide the whole numbers.

Q. $9 \div 0.6 =$ **A.** $9.\widehat{0} \div 0.\widehat{6} =$ *1 place right makes a whole number*

add zero as place holder $= 90 \div 6$ $= 15$

$$\begin{array}{r} 15 \\ 6 \overline{) 90} \end{array}$$
 $9 \div 6 = 1$ carry 3, write 1
 $30 \div 6 = 5$ write 5

a) $5 \div 0.5 =$

$= 5.\widehat{0} \div 0.\widehat{5}$

$= 50 \div 5 = \boxed{10}$

$$\begin{array}{r} 10 \\ 5 \overline{) 50} \end{array}$$

b) $6 \div 0.3 =$

$=$ _____
 $=$ _____ $=$

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

c) $6 \div 0.4 =$

$=$ _____
 $=$ _____ $=$

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

d) $8 \div 0.1 =$

$=$ _____ $=$

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

e) $5 \div 0.2 =$

$=$ _____ $=$

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

f) $4 \div 0.5 =$

$=$ _____ $=$

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

g) $9 \div 0.2 =$

$=$ _____ $=$

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

h) $3 \div 0.06 =$

$=$ _____ $=$

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

i) $7 \div 0.04 =$

$=$ _____ $=$

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

j) $4 \div 0.02 =$

$=$ _____ $=$

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

k) $9 \div 0.05 =$

$=$ _____ $=$

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

l) $6 \div 0.04 =$

$=$ _____ $=$

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