

9. [Decimal \times, \div]

Skill 9.1 Multiplying decimal numbers by a whole number.

MMBlue 1 2 3 4 4
MMGreen 1 2 2 3 3 4 4

When multiplying decimal numbers, first ignore the decimal point and complete the multiplication. To position the decimal point, total the number of places after the decimal points in the question. Count the same number of places from the right in your answer and put the decimal point.

Q. $2.3 \times 4 =$

A.

$$\begin{array}{r} 2.3 \\ \times 4 \\ \hline 9.2 \end{array}$$

Ignore the decimal point and multiply 4×23 .

Multiply $4 \times 3 = 12$. Put 2 in the tenths column and carry 10 tenths or 1 unit to the units column.

Complete $2 \times 4 = 8$, then add the 1 that was carried making 9.

Finally put the decimal point in your answer.

There is only one decimal place in the question, so we count one decimal place from the right in the answer.

a) $0.3 \times 3 =$

$$\begin{array}{r} 0.3 \\ \times 3 \\ \hline 0.9 \end{array}$$

b) $0.2 \times 5 =$

$$\begin{array}{r} 0.2 \\ \times 5 \\ \hline 1.0 \end{array}$$

c) $0.9 \times 7 =$

$$\begin{array}{r} 0.9 \\ \times 7 \\ \hline 6.3 \end{array}$$

d) $0.6 \times 2 =$

$$\begin{array}{r} 0.6 \\ \times 2 \\ \hline 1.2 \end{array}$$

e) $0.8 \times 8 =$

$$\begin{array}{r} 0.8 \\ \times 8 \\ \hline 6.4 \end{array}$$

f) $0.7 \times 3 =$

$$\begin{array}{r} 0.7 \\ \times 3 \\ \hline 2.1 \end{array}$$

g) $0.4 \times 8 =$

$$\begin{array}{r} 0.4 \\ \times 8 \\ \hline 3.2 \end{array}$$

h) $0.5 \times 4 =$

$$\begin{array}{r} 0.5 \\ \times 4 \\ \hline 2.0 \end{array}$$

i) $2.4 \times 3 =$

$$\begin{array}{r} 2.4 \\ \times 3 \\ \hline 7.2 \end{array}$$

j) $1.8 \times 5 =$

$$\begin{array}{r} 1.8 \\ \times 5 \\ \hline 9.0 \end{array}$$

k) $1.2 \times 4 =$

$$\begin{array}{r} 1.2 \\ \times 4 \\ \hline 4.8 \end{array}$$

l) $1.6 \times 3 =$

$$\begin{array}{r} 1.6 \\ \times 3 \\ \hline 4.8 \end{array}$$

m) $4 \times 0.7 =$

$$\begin{array}{r} 0.7 \\ \times 4 \\ \hline 2.8 \end{array}$$

n) $6 \times 0.9 =$

$$\begin{array}{r} 0.9 \\ \times 6 \\ \hline 5.4 \end{array}$$

o) $8 \times 0.3 =$

$$\begin{array}{r} 0.3 \\ \times 8 \\ \hline 2.4 \end{array}$$

p) $5 \times 0.6 =$

$$\begin{array}{r} 0.6 \\ \times 5 \\ \hline 3.0 \end{array}$$

Q. $0.32 \div 4 =$

A.
$$\begin{array}{r} 0.08 \\ 4 \overline{) 0.32} \end{array}$$

Line up and put the decimal point above the question.

Divide 4 into 0. Because the number we are dividing (0) is smaller than the number we are dividing by (4), we write a 0 above the units column. There is 0 remainder.

Divide 4 into 3. Again, because the number we are dividing (3) is smaller than the number we are dividing by (4), we write a 0 above the tenths column. There is 3 remainder.

Carry over the 3 tenths as 30 hundredths to the hundredths column. Add the 30 to the 2 to make 32 hundredths.

Divide 4 into 32. It goes exactly 8 times. Write an 8 in the hundredths column.

a) $1.2 \div 3 =$

$$\begin{array}{r} 0.4 \\ 3 \overline{) 1.2} \end{array}$$

b) $0.8 \div 4 =$

$$\begin{array}{r} 0 \\ 4 \overline{) 0.8} \end{array}$$

c) $1.4 \div 2 =$

$$\begin{array}{r} \dots \dots \\ 2 \overline{) 1.4} \end{array}$$

d) $0.16 \div 4 =$

$$\begin{array}{r} \dots \dots \dots \\ 4 \overline{) 0.16} \end{array}$$

e) $1.8 \div 9 =$

$$\begin{array}{r} \dots \dots \\ 9 \overline{) 1.8} \end{array}$$

f) $1.5 \div 5 =$

$$\begin{array}{r} \dots \dots \\ 5 \overline{) 1.5} \end{array}$$

g) $2.4 \div 6 =$

$$\begin{array}{r} \dots \dots \\ 6 \overline{) 2.4} \end{array}$$

h) $0.27 \div 3 =$

$$\begin{array}{r} \dots \dots \dots \\ 3 \overline{) 0.27} \end{array}$$

i) $4.9 \div 7 =$

$$\begin{array}{r} \dots \dots \\ 7 \overline{) 4.9} \end{array}$$

j) $6.4 \div 8 =$

$$\begin{array}{r} \dots \dots \\ 8 \overline{) 6.4} \end{array}$$

k) $0.72 \div 4 =$

$$\begin{array}{r} \dots \dots \dots \\ 4 \overline{) 0.72} \end{array}$$

l) $0.81 \div 9 =$

$$\begin{array}{r} \dots \dots \dots \\ 9 \overline{) 0.81} \end{array}$$

m) $0.35 \div 5 =$

$$\begin{array}{r} \dots \dots \dots \\ 5 \overline{) 0.35} \end{array}$$

n) $50.2 \div 2 =$

$$\begin{array}{r} \dots \dots \dots \\ 2 \overline{) 50.2} \end{array}$$

o) $31.2 \div 6 =$

$$\begin{array}{r} \dots \dots \dots \\ 6 \overline{) 31.2} \end{array}$$

p) $9.8 \div 7 =$

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

q) $2.65 \div 5 =$

$$\begin{array}{r} \dots \dots \dots \\ 5 \overline{) 2.65} \end{array}$$

r) $47.2 \div 4 =$

$$\begin{array}{r} \dots \dots \dots \\ 4 \overline{) 47.2} \end{array}$$

s) $64.4 \div 7 =$

$$\begin{array}{r} \dots \dots \dots \\ 7 \overline{) 64.4} \end{array}$$

t) $5.13 \div 3 =$

$$\begin{array}{r} \dots \dots \dots \\ 3 \overline{) 5.13} \end{array}$$

Zeros and decimals: Adding 0's either end of a decimal number does not change the number. 5 can also be written as 5.0 or 5.00 or 05.00. Similarly too you can remove any zero that is after the last digit of the decimal number, e.g. 0.030 can be written 0.03 or 15.00 can be written as 15.

Q. $0.15 \times 0.2 =$

A.
$$\begin{array}{r} 0.\overset{1}{1}5 \\ \times 0.2 \\ \hline 0.\overset{1}{0}30 \end{array}$$

Ignore the decimal points and multiply 2×15 .

Multiply $2 \times 5 = 10$. Put the 0 in the right hand column and carry the 1 to the second column.

Complete $2 \times 1 = 2$, then add the 1 that was carried to give 3.

Finally position the decimal point. There are 3 decimal places in the question, so move three decimal places from the right in your answer. To do this you will need to add a zero before the 3 and then put the decimal point.

a) $0.8 \times 0.2 =$

$$\begin{array}{r} 0.\overset{1}{8} \\ \times 0.2 \\ \hline 0.\overset{1}{1}6 \end{array}$$

b) $0.3 \times 0.6 =$

$$\begin{array}{r} 0.3 \\ \times 0.6 \\ \hline \end{array}$$

c) $0.4 \times 0.7 =$

$$\begin{array}{r} 0.4 \\ \times 0.7 \\ \hline \end{array}$$

d) $0.9 \times 0.5 =$

$$\begin{array}{r} 0.9 \\ \times 0.5 \\ \hline \end{array}$$

e) $0.06 \times 0.4 =$

$$\begin{array}{r} 0.06 \\ \times 0.4 \\ \hline \end{array}$$

f) $0.05 \times 0.7 =$

$$\begin{array}{r} 0.05 \\ \times 0.7 \\ \hline \end{array}$$

g) $0.14 \times 0.3 =$

$$\begin{array}{r} 0.14 \\ \times 0.3 \\ \hline \end{array}$$

h) $0.32 \times 0.8 =$

$$\begin{array}{r} 0.32 \\ \times 0.8 \\ \hline \end{array}$$

i) $1.6 \times 0.02 =$

$$\begin{array}{r} 1.6 \\ \times 0.02 \\ \hline \end{array}$$

j) $1.4 \times 0.04 =$

$$\begin{array}{r} 1.4 \\ \times 0.04 \\ \hline \end{array}$$

k) $2.5 \times 0.03 =$

$$\begin{array}{r} 2.5 \\ \times 0.03 \\ \hline \end{array}$$

l) $1.3 \times 0.07 =$

$$\begin{array}{r} 1.3 \\ \times 0.07 \\ \hline \end{array}$$

m) $2.2 \times 0.05 =$

$$\begin{array}{r} 2.2 \\ \times 0.05 \\ \hline \end{array}$$

n) $0.1 \times 0.008 =$

$$\begin{array}{r} 0.1 \\ \times 0.008 \\ \hline \end{array}$$

o) $0.1 \times 0.003 =$

$$\begin{array}{r} 0.1 \\ \times 0.003 \\ \hline \end{array}$$

p) $0.2 \times 0.004 =$

$$\begin{array}{r} 0.2 \\ \times 0.004 \\ \hline \end{array}$$

Skill 9.4 Dividing by decimal numbers.

It is easier to divide by a whole number rather than a decimal number. To change the divisor from a decimal number to a whole number, move the decimal point in both the dividend and divisor the same number of places, then divide.

Q. $1.5 \div 0.05 =$

A. $1.50 \div 0.05$
 $= 150 \div 5$
 $= 30$

Move the decimal point 2 places to the right to change the divisor, 0.05 into a whole number, 5.

Do the same to the dividend 1.5, making it 150.

Complete the division.

$$\begin{array}{r} 30 \\ 5 \overline{)150} \end{array}$$

a) $2.4 \div 0.6 =$

$$\begin{array}{r} 24 \div 6 \end{array}$$

$$\begin{array}{r} 4 \\ 6 \overline{)24} \end{array}$$

b) $0.55 \div 0.5 =$

$$\begin{array}{r} 55 \div 5 \end{array}$$

$$\begin{array}{r} 11 \\ 5 \overline{)55} \end{array}$$

c) $0.36 \div 0.3 =$

$$\begin{array}{r} 36 \div 3 \end{array}$$

$$\begin{array}{r} 12 \\ 3 \overline{)36} \end{array}$$

d) $0.63 \div 0.09 =$

$$\begin{array}{r} \dots \div \dots \end{array}$$

$$\begin{array}{r} \dots \\ 9 \overline{)63} \end{array}$$

e) $2.8 \div 0.07 =$

$$\begin{array}{r} \dots \div \dots \end{array}$$

$$\begin{array}{r} \dots \\ 7 \overline{)280} \end{array}$$

f) $5.6 \div 0.08 =$

$$\begin{array}{r} \dots \div \dots \end{array}$$

$$\begin{array}{r} \dots \\ 8 \overline{)560} \end{array}$$

g) $7.6 \div 0.04 =$

$$\begin{array}{r} \dots \div \dots \end{array}$$

$$\begin{array}{r} \dots \\ 4 \overline{)760} \end{array}$$

h) $8.55 \div 0.05 =$

$$\begin{array}{r} \dots \div \dots \end{array}$$

$$\begin{array}{r} \dots \\ 5 \overline{)855} \end{array}$$

i) $4.38 \div 0.06 =$

$$\begin{array}{r} \dots \div \dots \end{array}$$

$$\begin{array}{r} \dots \\ 6 \overline{)438} \end{array}$$

j) $1.8 \div 0.03 =$

$$\begin{array}{r} \dots \div \dots \end{array}$$

$$\begin{array}{r} \dots \\ \dots \overline{)180} \end{array}$$

k) $0.06 \div 0.2 =$

$$\begin{array}{r} \dots \div \dots \end{array}$$

$$\begin{array}{r} \dots \\ \dots \overline{)60} \end{array}$$

l) $5 \div 0.02 =$

$$\begin{array}{r} \dots \div \dots \end{array}$$

$$\begin{array}{r} \dots \\ \dots \overline{)500} \end{array}$$