

# 9. [Decimals]

## Skill 9.1 Counting tenths and hundredths in a $10 \times 10$ grid (1).

MM3.2 1 2 2 3 3 4 4  
MM4.1 1 1 2 2 3 3 4 4

- Count the number of squares in 1 row or 1 column.  
*Hint: Each row (or column) shows 10 tenths. The whole grid shows 100 hundredths.*

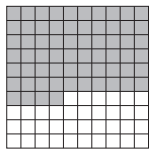
### To count tenths

- Count the number of completely shaded rows (or columns).

### To count hundredths

- Add on the amount of shaded squares in the shorter shaded row (or column) to the number of tenths. OR
- Count the total number of shaded squares.

Q.



tenths +

hundredths =

A. *6 tenths +  
4 hundredths  
= 0.64*

### Tenths:

There are 6 rows completely shaded

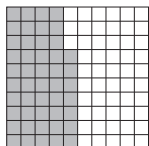
$\Rightarrow$  6 tenths

### Hundredths:

There are 4 shaded squares in the shorter row

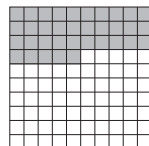
$\Rightarrow$  4 hundredths

a)



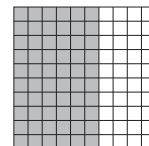
hundredths =

b)



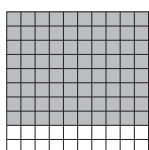
hundredths =

c)



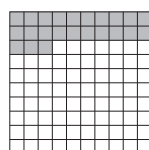
tenths =

d)



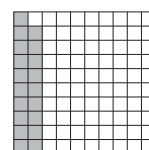
tenths =

e)



hundredths =

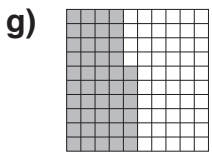
f)



hundredths =

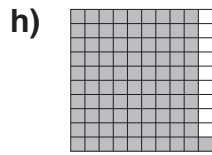
Skill 9.1 Counting tenths and hundredths in a  $10 \times 10$  grid (2).

MM3.2 1 1 2 2 3 3 4 4  
MM4.1 1 1 2 2 3 3 4 4



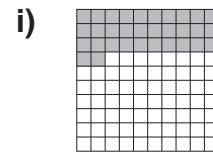
tenths +

hundredths =



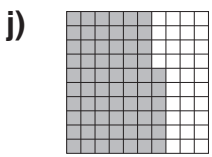
tenths +

hundredth =



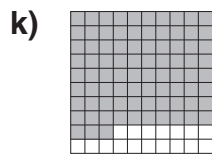
tenths +

hundredths =



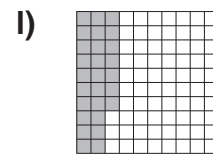
tenths +

hundredths =



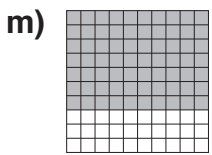
tenths +

hundredths =



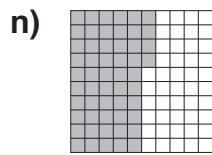
tenths +

hundredths =



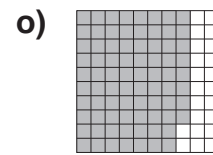
tenths +

hundredths =



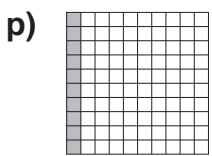
tenths +

hundredths =



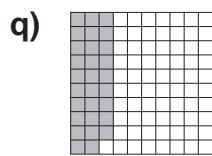
tenths +

hundredths =



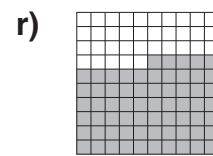
tenth +

hundredths =



tenths +

hundredths =



tenths +

hundredths =

## Skill 9.2 Expressing word decimal numbers in numerals.

MM3.2 1 1 2 2 3 3 4 4  
MM4.1 1 1 2 2 3 3 4 4

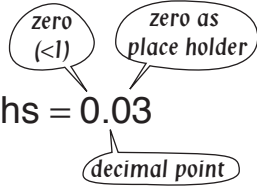
Rule 1: Write the numbers from left to right in the same order as the words.

Rule 2: If the number is less than one then put a zero before the decimal point.

Rule 3: The decimal point goes between the units and the tenths.

Rule 4: Write a zero as a place holder in any place that is left empty between other digits.

Three hundredths = 0.03



### DECIMAL PLACE VALUE

Units	Tenths	Hundredths
0	• 0	3

**Q.** Write as a decimal:  
fifty-eight hundredths

**A.** **0.58**

To show a number is less than 1, first put a zero and then a decimal point.

Then write the numbers 5 and 8 in order.  
Check that the 8 is in the hundredths position.

The 5 should be in the tenths position.

**a)** Write as a decimal:  
two tenths

0.2

**b)** Write as a decimal:  
seven tenths

**c)** Write as a decimal:  
nine tenths

**d)** Write as a decimal:  
three and two tenths

**e)** Write as a decimal:  
four and one tenth

**f)** Write as a decimal:  
five and eight tenths

**g)** Write as a decimal:  
six and one tenth

**h)** Write as a decimal:  
six hundredths

**i)** Write as a decimal:  
three hundredths

**j)** Write as a decimal:  
twenty-four hundredths

**k)** Write as a decimal:  
seventy-one hundredths

**l)** Write as a decimal:  
sixty-six hundredths

**m)** Write as a decimal:  
two and thirty-one  
hundredths

**n)** Write as a decimal:  
five and sixty-nine  
hundredths

**o)** Write as a decimal:  
one and twelve  
hundredths

### Skill 9.3 Reading a decimal number on a scale (1).

MM3.2 11 2 2 3 3 4 4  
MM4.1 11 2 2 3 3 4 4

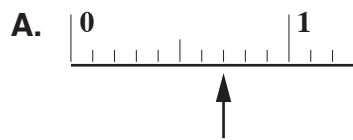
- Count the number of spaces between two whole numbers.  
(Always one more than the number of marks.)
- Work out the value of each space.

Example: 10 spaces between each whole number  $\Rightarrow 1 \div 10 = 0.1$   
Each mark is further along the scale by one tenth or 0.1



- Starting at the last whole number, count on by 0.1. Point to each mark as you go.

**Q.** Show with an arrow the number 0.7 on the scale.



There are 10 spaces between 0 and 1.

Each space is worth one tenth:

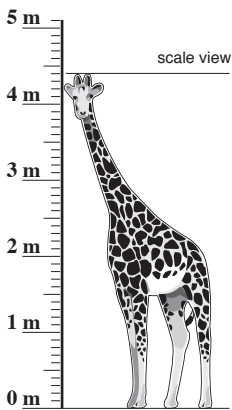
$$\frac{1}{10} = 1 \div 10 = 0.1$$

From '0' you can count on:

0, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7 OR

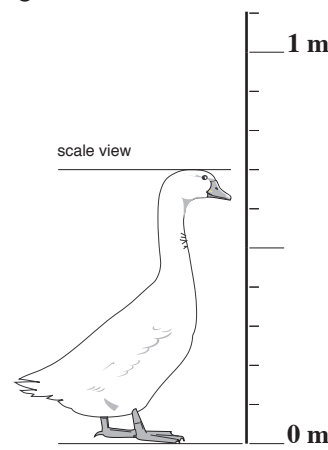
Knowing the middle mark is 0.5, count on from 0.5: 0.5, 0.6, 0.7

**a)** Use the scale to find the height of the giraffe in metres.



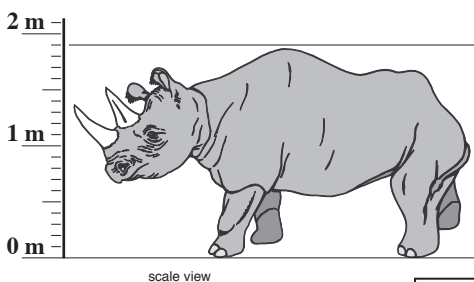
4.4 m

**b)** Use the scale to find the height of the goose in metres.



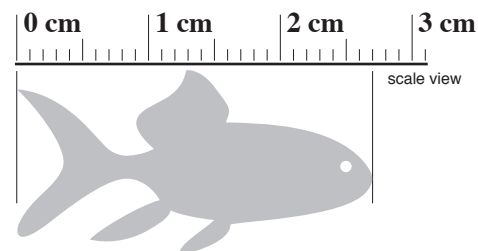
m

**c)** Use the scale to find the height of the rhinoceros in metres.



m

**d)** Use the scale to find the length of the fish in centimetres.

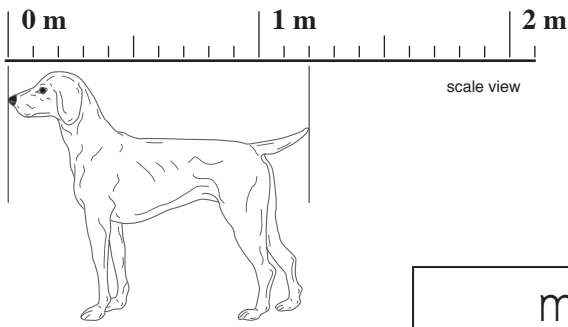


cm

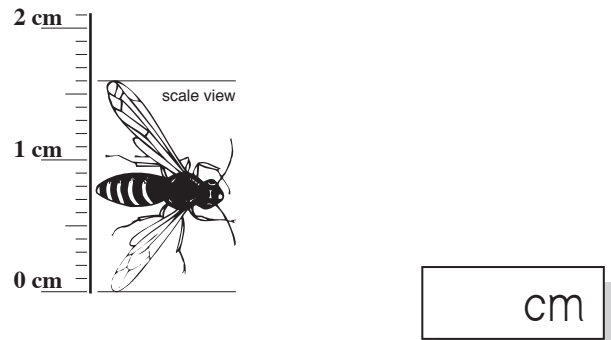
**Skill 9.3** Reading a decimal number on a scale (2).

MM3.2 11 2 3 3 4 4  
MM4.1 11 2 2 3 3 4 4

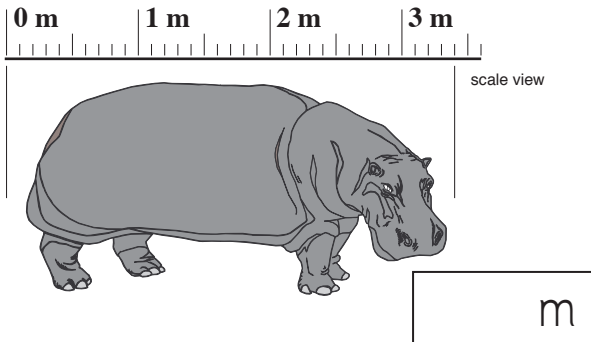
**e)** Use the scale to find the length of the dog in metres.



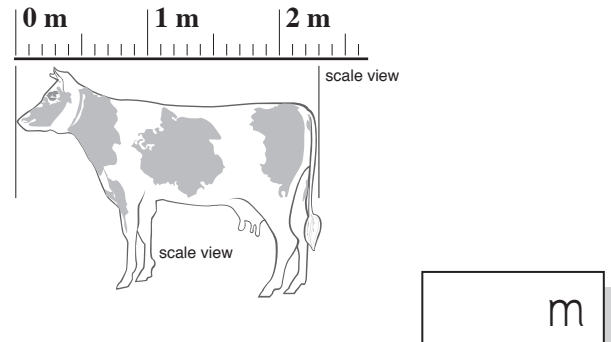
**f)** Use the scale to find the wing span of the bee in centimetres.



**g)** Use the scale to find the length of the hippopotamus in metres.



**h)** Use the scale to find the length of the cow in metres.



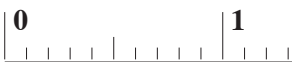
**i)** Show with an arrow the number 3.8 on the scale.



**j)** Show with an arrow the number 7.3 on the scale.



**k)** Show with an arrow the number 0.6 on the scale.



**l)** Show with an arrow the number 4.2 on the scale.



**m)** Show with an arrow the number 6.5 on the scale.



**n)** Show with an arrow the number 1.9 on the scale.



**Less than 100 cents**

- Write a zero first if the cents are less than 100.
- Write the decimal point.
- Write the cents after the decimal point.

*Hint: Use a 0 as a place holder after the decimal point for any amount less than 10 cents.*

Example:  $6\text{¢} = \$0.06$

**More than 100 cents**

- Separate the hundreds of cents to make whole dollars.
- Write the whole dollars followed by the decimal point.
- Write the remaining cents after the decimal point.

**Conversion Fact - MONEY**

100 cents = 1 dollar

**Q.** Write these cents in dollars:

$638\text{¢} =$

**A.**  $638\text{¢}$   
 $= 600\text{¢} + 38\text{¢}$   
 $= \$6 + 38\text{¢}$   
 $= \mathbf{\$6.38}$

**a)** Write these cents in dollars:

$24\text{¢} =$

**b)** Write these cents in dollars:

$31\text{¢} =$

**c)** Write these cents in dollars:

$59\text{¢} =$

**d)** Write these cents in dollars:

$100\text{¢} =$

**e)** Write these cents in dollars:

$900\text{¢} =$

**f)** Write these cents in dollars:

$400\text{¢} =$

**g)** Write these cents in dollars:

$126\text{¢} =$

**h)** Write these cents in dollars:

$459\text{¢} =$

**i)** Write these cents in dollars:

$746\text{¢} =$

**j)** Write these cents in dollars:

$90\text{¢} =$

**k)** Write these cents in dollars:

$30\text{¢} =$

**l)** Write these cents in dollars:

$50\text{¢} =$

**m)** Write these cents in dollars:

$206\text{¢} =$

**n)** Write these cents in dollars:

$704\text{¢} =$

**o)** Write these cents in dollars:

$801\text{¢} =$

**p)** Write these cents in dollars:

$8\text{¢} =$

**q)** Write these cents in dollars:

$4\text{¢} =$

**r)** Write these cents in dollars:

$3\text{¢} =$

## Skill 9.5 Comparing place value in decimal numbers.

MM3.2 1 1 2 2 3 3 4 4  
MM4.1 1 1 2 2 3 3 4 4

- Line up the decimal numbers at their decimal points.
- Compare the size of digits in the same places, starting from the left.

Place value	thousands	hundreds	tens	units	decimal point	tenths	hundredths	thousandths
	1000	100	10	1	.	0.1	0.01	0.001

**Hint:** Using zeros as place holders does not change the value of a number when the zeros are put:

**EITHER**

**Before the first digit in any number**

Example: 5

The digit 5 is in the units place:

$$5 = 05 = 005$$

**OR**

**After the last digit of a decimal number, after the decimal point**

Example: 0.5

The digit 5 is in the tenths place:

$$0.5 = 0.50 = 0.500$$

**Q.** Which of the following are true?

- A)  $6.0 = 6.00$   
 B)  $400 = 40$   
 C)  $0.7 = 0.070$   
 D)  $0.8 = 0.800$

**A. A and D**

Line up the numbers at their decimal points.

Compare from the left.

A)  $\begin{array}{r} 6.0 = \\ 6.00 \end{array}$  True

B)  $\begin{array}{r} 400 = \\ 40 \end{array}$  False

C)  $\begin{array}{r} 0.7 = \\ 0.070 \end{array}$  False

D)  $\begin{array}{r} 0.8 = \\ 0.800 \end{array}$  True

Only A and D are true.

**a)** Which of the following are true?

- A)  $6 = 60.0$   
 B)  $50.0 = 50$   
 C)  $0.3 = 0.3$   
 D)  $00.2 = 2.00$

**B and C**

**b)** Which of the following are true?

- A)  $70 = 7$   
 B)  $9 = 0.9$   
 C)  $0.5 = 0.50$   
 D)  $8.0 = 8.00$

**and**

**c)** Which of the following are true?

- A)  $10.0 = 1.0$   
 B)  $50.0 = 50$   
 C)  $0.07 = 0.007$   
 D)  $4 = 4.0$

**and**

**d)** Which of the following are true?

- A)  $90 = 90.0$   
 B)  $4 = 40.0$   
 C)  $20.0 = 0.20$   
 D)  $0.50 = 0.5$

**and**

**e)** Which of the following are true?

- A)  $0.03 = 0.30$   
 B)  $0.4 = 0.40$   
 C)  $7 = 0.70$   
 D)  $8.0 = 8.0000$

**and**

**f)** Which of the following are true?

- A)  $5.0 = 5$   
 B)  $20 = 20.0$   
 C)  $0.4 = 0.004$   
 D)  $0.30 = 3.0$

**and**

**Skill 9.6** Adding dollars and cents.

- Add the cents first.
- Convert cents to dollars where possible.
- Add the dollars next.
- Add the totals.

**Conversion Fact - MONEY**

100 cents = 1 dollar

Q.  $\$3.40 + \$3.65 =$

A.  $\$3.40 + \$3.65 =$

$$40\text{¢} + 65\text{¢} = 105\text{¢}$$

$$105\text{¢} = \$1.05$$

$$\$3.00 + \$3.00 = \$6.00$$

$$= \underline{\underline{\$7.05}}$$

**Cents:**

$$40 + 65 = 105 \text{ cents}$$

105 cents = 1 dollar and  
5 cents

**Dollars:**

$$1 + 6 = 7 \text{ dollars}$$

**Totals:**

$$\$1.05 + \$6.00 = \$7.05$$

a)  $\$2.30 + \$3.95 =$

$$30\text{¢} + 95\text{¢} = 125\text{¢}$$

$$125\text{¢} = \$1.25$$

$$\$2.00 + \$3.00 = \$5$$

$$= \boxed{\$6.25}$$

b)  $\$2.40 + \$5.60 =$

$$40\text{¢} + 60\text{¢} = 100\text{¢}$$

$$100\text{¢} = \$1$$

$$= \$$$

$$= \boxed{\$}$$

c)  $\$4.55 + \$2.05 =$

$$55\text{¢} = 55\text{¢}$$

$$55\text{¢} = \$$$

$$= \$$$

$$= \boxed{\$}$$

d)  $\$1.65 + \$3.45 =$

$$65\text{¢} = 65\text{¢}$$

$$65\text{¢} = \$$$

$$= \$$$

$$= \boxed{\$}$$

e)  $\$3.50 + \$1.95 =$

$$50\text{¢} = 50\text{¢}$$

$$50\text{¢} = \$$$

$$= \$$$

$$= \boxed{\$}$$

f)  $\$3.85 + \$4.50 =$

$$85\text{¢} = 85\text{¢}$$

$$85\text{¢} = \$$$

$$= \$$$

$$= \boxed{\$}$$



- Write the word problem as a number sentence.

**Conversion Fact - MONEY**  
100 cents = 1 dollar

**EITHER**

- Consider the cents first.
- Build up the cents, in steps if necessary, to the next whole dollar.

**OR**

- Subtract the decimal number from the whole number. (see skill 9.10, page 49)

**Q.** How much change will you receive from \$10.00 if you spend \$5.15?

**A.**  $\$5.15 + 85c = \$6.00$   
 $\$6.00 + \$4.00 = \$10.00$   
 $85c + \$4.00 = \$4.85$

“How much must I add to \$5.15 to have \$6.00?”

“\$5.15 plus 5 cents makes \$5.20  
 And 80 cents more will make \$6.00  
 Altogether I need 85 cents more.”

So \$5.15 and \$0.85 make \$6.00  
 Then \$4.00 more will make \$10.00

**a)** How much change will you receive from \$5.00 if you spend \$3.45?

$\$3.45 + 55c = \$4.00$

$\$4.00 + \$1.00 = \$5.00$

$55c + \$1.00 =$  \$ 1.55

**b)** How much change will you receive from \$5.00 if you spend \$2.30?

$\$5.00 - \$2.30 =$  \$

**c)** How much change will you receive from \$10.00 if you spend \$2.05?

.....  
 .....  
 $\$10.00 - \$2.05 =$  \$

**d)** How much change will you receive from \$10.00 if you spend \$0.90?

.....  
 .....  
 $\$10.00 - \$0.90 =$  \$

**e)** How much change will you receive from \$10.00 if you spend \$4.65?

.....  
 .....  
 $\$10.00 - \$4.65 =$  \$

**f)** How much change will you receive from \$5.00 if you spend \$3.85?

.....  
 .....  
 $\$5.00 - \$3.85 =$  \$

## Skill 9.8 Adding decimal numbers with carry over using columns (1).

MM3.2 11 22 3 4  
MM4.1 11 22 33 44

- Always keep your working columns in line, aligning the decimal points, the decimal places, units with units, tens with tens, etc.
- Add from right to left.

Q. 
$$\begin{array}{r} \$2.75 \\ + \$1.45 \\ \hline \end{array}$$

A.

$$\begin{array}{r} \text{units} \quad \text{tenths} \quad \text{hundredths} \\ \begin{array}{r} 1 \quad 1 \\ \$2.75 \\ + \$1.45 \\ \hline \end{array} \\ \text{Hundredths first!} \\ \begin{array}{r} \$4.20 \end{array} \end{array}$$

**Hundredths:**

$$5 + 5 = 10$$

10 hundredths = 1 tenth and 0 hundredths  
⇒ 0 hundredths

Carry over the 1 tenth to the tenths column.

**Tenths:**

$$7 + 4 + 1 \text{ (carry over)} = 12$$

12 tenths = 1 unit and 2 tenths

⇒ 2 tenths

Carry over the 1 unit to the units column.

Put the decimal point in the answer box under the other decimal points.

**Units:**

$$2 + 1 + 1 \text{ (carry over)} = 4 \quad \Rightarrow 4 \text{ units}$$

a) 
$$\begin{array}{r} 1 \\ \$1.50 \\ + \$3.50 \\ \hline \end{array}$$

Hundredths first!

b) 
$$\begin{array}{r} \$4.35 \\ + \$2.45 \\ \hline \end{array}$$

c) 
$$\begin{array}{r} \$2.60 \\ + \$1.75 \\ \hline \end{array}$$

d) 
$$\begin{array}{r} \$3.75 \\ + \$8.05 \\ \hline \end{array}$$

e) 
$$\begin{array}{r} \$4.60 \\ + \$1.90 \\ \hline \end{array}$$

f) 
$$\begin{array}{r} \$2.30 \\ + \$2.85 \\ \hline \end{array}$$

g) 
$$\begin{array}{r} \$7.80 \\ + \$0.65 \\ \hline \end{array}$$

h) 
$$\begin{array}{r} \$6.25 \\ + \$3.95 \\ \hline \end{array}$$

i) 
$$\begin{array}{r} 0.64 \\ + 1.5 \\ \hline \end{array}$$

j) 
$$\begin{array}{r} 4.1 \\ + 3.94 \\ \hline \end{array}$$

k) 
$$\begin{array}{r} 2.05 \\ + 6.65 \\ \hline \end{array}$$

l) 
$$\begin{array}{r} 4.8 \\ + 2.75 \\ \hline \end{array}$$

Skill 9.8 Adding decimal numbers with carry over using columns (2).

MM3.2 1 1 2 2 3 3 4 4  
MM4.1 1 1 2 2 3 3 4 4

m) 
$$\begin{array}{r} 6.37 \\ + 1.34 \\ \hline \end{array}$$

n) 
$$\begin{array}{r} 9.18 \\ + 0.34 \\ \hline \end{array}$$

o) 
$$\begin{array}{r} 2.19 \\ + 8.72 \\ \hline \end{array}$$

p) 
$$\begin{array}{r} 5.65 \\ + 3.8 \\ \hline \end{array}$$

q) 
$$\begin{array}{r} 7.65 \\ + 3.63 \\ \hline \end{array}$$

r) 
$$\begin{array}{r} 2.38 \\ + 5.72 \\ \hline \end{array}$$

s) 
$$\begin{array}{r} 1.5 \\ + 4.74 \\ \hline \end{array}$$

t) 
$$\begin{array}{r} 3.66 \\ + 0.9 \\ \hline \end{array}$$

u) 
$$\begin{array}{r} 17.5 \\ + 0.96 \\ \hline \end{array}$$

v) 
$$\begin{array}{r} 1.88 \\ + 12.4 \\ \hline \end{array}$$

w) 
$$\begin{array}{r} 3.08 \\ + 10.45 \\ \hline \end{array}$$

x) 
$$\begin{array}{r} 26.7 \\ + 4.31 \\ \hline \end{array}$$

y) 
$$\begin{array}{r} 1.81 \\ 2.53 \\ + 4.52 \\ \hline \end{array}$$

z) 
$$\begin{array}{r} 5.05 \\ 6.28 \\ + 1.43 \\ \hline \end{array}$$

A) 
$$\begin{array}{r} 2.6 \\ 3.7 \\ + 1.99 \\ \hline \end{array}$$

B) 
$$\begin{array}{r} 9.81 \\ 2.57 \\ + 4.13 \\ \hline \end{array}$$

c) 
$$\begin{array}{r} 25.04 \\ 10.87 \\ + 3.95 \\ \hline \end{array}$$

D) 
$$\begin{array}{r} 16.32 \\ 4.08 \\ + 3.64 \\ \hline \end{array}$$

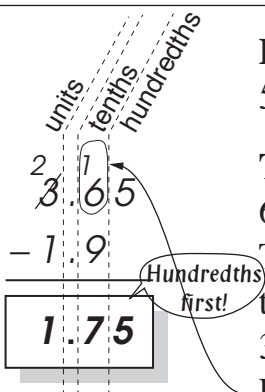
E) 
$$\begin{array}{r} 9.17 \\ 42.53 \\ + 14.7 \\ \hline \end{array}$$

F) 
$$\begin{array}{r} 23.59 \\ 8.43 \\ + 36.01 \\ \hline \end{array}$$

- Keep the units, decimal points, tenths and hundredths in their own column.
- Work from right to left.

Q. 
$$\begin{array}{r} 3.65 \\ - 1.9 \\ \hline \end{array}$$

A.



**Hundredths:**

$5 - 0 = 5 \Rightarrow 5 \text{ hundredths}$

**Tenths:**

$6 - 9 = ? \text{ tenths.}$

To make the answer positive break down the 3 units.

$3 \text{ units} = 2 \text{ units and } 10 \text{ tenths.}$

Re-group the 10 tenths with the 6 tenths to make 16 tenths.

Now...

$16 - 9 = 7 \Rightarrow 7 \text{ tenths}$

Put the decimal point in the answer box under the other decimal points.

**Units:**

$2 - 1 = 1 \Rightarrow 1 \text{ unit}$

a) 
$$\begin{array}{r} 5 \quad 7 \\ \cancel{3}.65 \\ - 2.8 \\ \hline 3.85 \end{array}$$

b)

$$\begin{array}{r} 3.27 \\ - 1.54 \\ \hline \end{array}$$

c)

$$\begin{array}{r} 5.51 \\ - 2.36 \\ \hline \end{array}$$

d)

$$\begin{array}{r} 4.82 \\ - 3.84 \\ \hline \end{array}$$

e) 
$$\begin{array}{r} 4.21 \\ - 3.04 \\ \hline \end{array}$$

f)

$$\begin{array}{r} 7.75 \\ - 1.08 \\ \hline \end{array}$$

g)

$$\begin{array}{r} 6.13 \\ - 0.62 \\ \hline \end{array}$$

h)

$$\begin{array}{r} 5.55 \\ - 1.73 \\ \hline \end{array}$$

i) 
$$\begin{array}{r} 3.54 \\ - 0.97 \\ \hline \end{array}$$

j)

$$\begin{array}{r} 2.06 \\ - 1.29 \\ \hline \end{array}$$

k)

$$\begin{array}{r} 4.24 \\ - 1.98 \\ \hline \end{array}$$

l)

$$\begin{array}{r} 3.66 \\ - 2.88 \\ \hline \end{array}$$

m) 
$$\begin{array}{r} 18.37 \\ - 5.62 \\ \hline \end{array}$$

n)

$$\begin{array}{r} 24.19 \\ - 11.73 \\ \hline \end{array}$$

o)

$$\begin{array}{r} 36.52 \\ - 20.18 \\ \hline \end{array}$$

p)

$$\begin{array}{r} 17.46 \\ - 8.09 \\ \hline \end{array}$$

- Write the whole number first, with a decimal point and one or two zeros after it.  
*Hint: The number does not change.  $5 = 5.00$*
- Write the decimal number underneath.
- Line up the decimal points.
- Subtract using columns. (see skill 9.9, page 48)

Q.  $5 - 0.94 =$

A.

$$\begin{array}{r}
 \begin{array}{c} \text{units} \\ \text{tenths} \\ \text{hundredths} \end{array} \\
 \begin{array}{r}
 4 \quad 9 \quad 1 \\
 5.00 \\
 -0.94 \\
 \hline
 4.06
 \end{array}
 \end{array}$$

*Hundredths first!*

**Hundredths:**

$0 - 4 = ?$  hundredths

To make the answer positive break down the 5 units:

$5 \text{ units} = 4 \text{ units} + 9 \text{ tenths} + 10$

hundredths

Now...

$10 - 4 = 6 \Rightarrow 6 \text{ hundredths}$

**Tenths:**

$9 - 9 = 0 \Rightarrow 0 \text{ tenths}$

Put the decimal point in the answer box.

**Units:**

$4 - 0 = 4 \Rightarrow 4 \text{ units}$

a)  $2 - 0.3 =$

$$\begin{array}{r}
 \begin{array}{c} \text{units} \\ \text{tenths} \end{array} \\
 \begin{array}{r}
 1 \quad 1 \\
 2.0 \\
 -0.3 \\
 \hline
 1.7
 \end{array}
 \end{array}$$

*Tenths first!*

b)  $1 - 0.5 =$

$$\begin{array}{r}
 \begin{array}{c} \text{units} \\ \text{tenths} \end{array} \\
 \begin{array}{r}
 0 \quad 1 \\
 1.0 \\
 -0.5 \\
 \hline
 \square
 \end{array}
 \end{array}$$

c)  $7 - 0.8 =$

$$\begin{array}{r}
 \begin{array}{c} \text{units} \\ \text{tenths} \end{array} \\
 \begin{array}{r}
 7 \quad 0 \\
 -0.8 \\
 \hline
 \square
 \end{array}
 \end{array}$$

d)  $4 - 0.9 =$

$$\begin{array}{r}
 \begin{array}{c} \text{units} \\ \text{tenths} \end{array} \\
 \begin{array}{r}
 4 \quad 0 \\
 -0.9 \\
 \hline
 \square
 \end{array}
 \end{array}$$

e)  $3 - 0.25 =$

$$\begin{array}{r}
 \begin{array}{c} \text{units} \\ \text{tenths} \\ \text{hundredths} \end{array} \\
 \begin{array}{r}
 3.00 \\
 -0.25 \\
 \hline
 \square
 \end{array}
 \end{array}$$

f)  $9 - 0.35 =$

$$\begin{array}{r}
 \begin{array}{c} \text{units} \\ \text{tenths} \\ \text{hundredths} \end{array} \\
 \begin{array}{r}
 9.00 \\
 -0.35 \\
 \hline
 \square
 \end{array}
 \end{array}$$

g)  $6 - 0.61 =$

$$\begin{array}{r}
 \begin{array}{c} \text{units} \\ \text{tenths} \\ \text{hundredths} \end{array} \\
 \begin{array}{r}
 6.00 \\
 -0.61 \\
 \hline
 \square
 \end{array}
 \end{array}$$

h)  $4 - 0.27 =$

$$\begin{array}{r}
 \begin{array}{c} \text{units} \\ \text{tenths} \\ \text{hundredths} \end{array} \\
 \begin{array}{r}
 4.00 \\
 -0.27 \\
 \hline
 \square
 \end{array}
 \end{array}$$

i)  $3 - 0.18 =$

$$\begin{array}{r}
 \begin{array}{c} \text{units} \\ \text{tenths} \\ \text{hundredths} \end{array} \\
 \begin{array}{r}
 3.00 \\
 -0.18 \\
 \hline
 \square
 \end{array}
 \end{array}$$

j)  $5 - 0.34 =$

$$\begin{array}{r}
 \begin{array}{c} \text{units} \\ \text{tenths} \\ \text{hundredths} \end{array} \\
 \begin{array}{r}
 5.00 \\
 -0.34 \\
 \hline
 \square
 \end{array}
 \end{array}$$

k)  $2 - 0.83 =$

$$\begin{array}{r}
 \begin{array}{c} \text{units} \\ \text{tenths} \\ \text{hundredths} \end{array} \\
 \begin{array}{r}
 2.00 \\
 -0.83 \\
 \hline
 \square
 \end{array}
 \end{array}$$

l)  $7 - 0.72 =$

$$\begin{array}{r}
 \begin{array}{c} \text{units} \\ \text{tenths} \\ \text{hundredths} \end{array} \\
 \begin{array}{r}
 7.00 \\
 -0.72 \\
 \hline
 \square
 \end{array}
 \end{array}$$



## Skill 9.12 Multiplying decimal numbers by powers of 10.

MM3.2 11 22 33 44  
MM4.1 11 22 33 44

- To multiply by a power of 10, move the decimal point to the right one place for each 0.
  - Remove the decimal point at the end of the number if no other digits follow.
  - Remove all the zeros at the end of the decimal number if needed.
- Example:  $15.6\cancel{00} = 15.6$

Q.  $7.48 \times 10 =$

A.  $7.48 \times 10 =$  *one zero, one place*  
 $= 74.8$

a)  $5.3 \times 10 =$

$= 5.3 \times 10 =$

b)  $6.2 \times 10 =$

$=$

c)  $9.7 \times 10 =$

$=$

d)  $1.8 \times 10 =$

$=$

e)  $0.7 \times 10 =$

$=$

f)  $0.1 \times 10 =$

$=$

g)  $4.18 \times 10 =$

$=$

h)  $5.06 \times 10 =$

$=$

i)  $3.79 \times 10 =$

$=$

j)  $1.03 \times 10 =$

$=$

k)  $2.74 \times 10 =$

$=$

l)  $9.56 \times 10 =$

$=$

m)  $2.7 \times 100 =$

$= 2.70 \times 100 =$

*two zeros, two places*

n)  $9.1 \times 100 =$

$=$

o)  $8.3 \times 100 =$

$=$

p)  $0.5 \times 100 =$

$=$

q)  $4.7 \times 100 =$

$=$

r)  $0.9 \times 100 =$

$=$

s)  $6.25 \times 100 =$

$=$

t)  $7.81 \times 100 =$

$=$

u)  $4.39 \times 100 =$

$=$

### Skill 9.13 Multiplying decimal numbers by a single digit.

MM3.2 11 22 33 44  
MM4.1 11 22 33 44

- Work from right to left.
- Count the total number of digits to the right of the decimal point in the question.
- Count over, from the right in the answer, the same number of digits and place the decimal point.

Q. 
$$\begin{array}{r} 2.42 \\ \times 4 \\ \hline \end{array}$$

A. 
$$\begin{array}{r} 2.42 \\ \times 4 \\ \hline 9.68 \end{array}$$

$4 \times 2 = 8 \Rightarrow 8$

$4 \times 4 = 16$

Write the 6 and carry the 1.  $\Rightarrow 6$

$4 \times 2 = 8$  Add the 1 carry.

$8 + 1 = 9 \Rightarrow 9$

$$\begin{array}{r} 2.42 \\ \times 4 \\ \hline 9.68 \end{array}$$

2 digits right of the decimal point

2 digits right of the decimal point

Count the total number of digits to the right of the decimal point in the question. There are 2.

Count over 2 numbers from the right and place the decimal point in the answer.

a) 
$$\begin{array}{r} 20.1 \\ \times 3 \\ \hline 60.3 \end{array}$$

1 digit right of the decimal point

1 digit right of the decimal point

b) 
$$\begin{array}{r} 21.2 \\ \times 4 \\ \hline \end{array}$$

c) 
$$\begin{array}{r} 12.3 \\ \times 3 \\ \hline \end{array}$$

d) 
$$\begin{array}{r} 34.2 \\ \times 2 \\ \hline \end{array}$$

e) 
$$\begin{array}{r} 24.1 \\ \times 3 \\ \hline \end{array}$$

f) 
$$\begin{array}{r} 12.6 \\ \times 3 \\ \hline \end{array}$$

g) 
$$\begin{array}{r} 22.4 \\ \times 4 \\ \hline \end{array}$$

h) 
$$\begin{array}{r} 16.4 \\ \times 2 \\ \hline \end{array}$$

i) 
$$\begin{array}{r} 1.03 \\ \times 5 \\ \hline \end{array}$$

2 digits right of the decimal point

j) 
$$\begin{array}{r} 1.52 \\ \times 4 \\ \hline \end{array}$$

k) 
$$\begin{array}{r} 2.51 \\ \times 3 \\ \hline \end{array}$$

l) 
$$\begin{array}{r} 1.23 \\ \times 4 \\ \hline \end{array}$$

m) 
$$\begin{array}{r} 2.53 \\ \times 2 \\ \hline \end{array}$$

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

o) 
$$\begin{array}{r} 4.03 \\ \times 3 \\ \hline \end{array}$$

p) 
$$\begin{array}{r} 5.01 \\ \times 6 \\ \hline \end{array}$$