Math Review

Volume 2

Decimals

Math Review
By Carol Ann Goldstein

A sample of the content from:

Volume 2 - Decimals

MENU

Math Review: By Carol Ann Goldstein
Demo Volume Two

Questions

DECIMALS
Write your answer as follows:
If the answer is a decimal such as 0.1, then write 0.1.
If the answer is a whole number such as 2, then write 2 or 2.0.
If the answer is a whole number and a decimal such as 2.1, then write 2.1

Add the decimals.

1.
0.1 + 0.1 =

2.
0.2 + 0.1 =

Subtract the decimals.

1.
0.1 - 0.1 =

2.
0.2 - 0.1 =

Multiply the decimals.

1.
0.1 X 0.1 =

2.
0.2 X 0.1 =

Divide the decimals.

1.
0.1 ÷ 0.1 =

2.
0.2 ÷ 0.1 =

ANSWERS

Add decimals.

1.
0.2 or 0.20 or .2 or .20

2.
0.3 or 0.30 or .3 or .30

Subtract decimals.

1.
0.0 or 0

2.
0.1 or 0.10 or .1 or .10

Multiply decimals.

1.
0.01 or .01

2.
0.02 or .02

Divide decimals.

1.
1.0 or 1.00 or 1

2.
2.0 or 2.00 or 2

Explanations

ADD DECIMALS Question 1

A decimal is also a percentage(%).
A percentage(%) is a part of 100; the number 1 is 100%, the number 2 is 200%, the fraction 1/2 is 50%.
A decimal is written as:
0.1 or 0.10 or .1 or .10
1 = 1.0 = 1.00 = 100/100 = 100%
0.1 = 0.10 = .1 = .10 = 10/100 = 10%
0.01 = .01 = 1/100 = 1%
0.001 = .001 = 1/1000 = 0.1%
As the decimal point(.) moves to the right the number becomes larger.
As the decimal point(.) moves to the left the number becomes smaller.
The places to the right of the decimal point(.) are place holders for ones, tens, hundreds, etc., just as the place holders for whole numbers such as 1, 10, 100, 1000.

0.1 + 0.1 =
Step 1: We can think of the 2 decimals as 2 numbers and we get the following:
 0.1
+0.1
 0.2
Step 2: As a proof of our answer we can say:
0.1 = 10/100 *then*:
0.1 + 0.1 = 10/100 + 10/100 = 20/100 = 0.20 = 0.2
Step 3: The answer can also be written as:
0.2 = 0.20 = .2 = .20 = 20/100 = 20%
Conclusion: We started out with two decimals and now have a new decimal.
0.1 + 0.1 = 0.2

ADD DECIMALS Question 2

A decimal is also a percentage(%).
A percentage(%) is a part of 100; the number 1 is 100%, the number 2 is 200%, the fraction 1/2 is 50%.
A decimal is written as:
0.1 or 0.10 or .1 or .10
1 = 1.0 = 1.00 = 100/100 = 100%
0.1 = 0.10 = .1 = .10 = 10/100 = 10%
0.01 = .01 = 1/100 = 1%
0.001 = .001 = 1/1000 = 0.1%
As the decimal point(.) moves to the right the number becomes larger.
As the decimal point(.) moves to the left the number becomes smaller.
The places to the right of the decimal point(.) are place holders for ones, tens, hundreds, etc., just as the place holders for whole numbers such as 1, 10, 100, 1000.

0.2 + 0.1 =
Step 1: We can think of the 2 decimals as 2 numbers and we get the following:
 0.2
<u>+0.1</u>
 0.3
Step 2: As a proof of our answer we can say:
0.2 = 20/100 AND 0.1 = 10/100 *then*:
0.2 + 0.1 = 20/100 + 10/100 = 30/100 = 0.30 = 0.3
Step 3: The answer can also be written as:
0.3 = 0.30 = .3 = .30 = 30/100 = 30%
Conclusion: We started out with two decimals and now have a new decimal.
0.2 + 0.1 = 0.3

SUBTRACT DECIMALS Question 1

A decimal is also a percentage(%).
A percentage(%) is a part of 100; the number 1 is 100%, the number 2 is 200%, the fraction 1/2 is 50%.
A decimal is written as:
0.1 or 0.10 or .1 or .10
1 = 1.0 = 1.00 = 100/100 = 100%
0.1 = 0.10 = .1 = .10 = 10/100 = 10%
0.01 = .01 = 1/100 = 1%
0.001 = .001 = 1/1000 = 0.1%
As the decimal point(.) moves to the right the number becomes larger.
As the decimal point(.) moves to the left the number becomes smaller.
The places to the right of the decimal point(.) are place holders for ones, tens, hundreds, etc., just as the place holders for whole numbers such as 1, 10, 100, 1000.

0.1 · 0.1 =
Step 1: We can think of the 2 decimals as 2 numbers and we get the following:
 0.1
<u>- 0.1</u>
 0.0
Step 2: As a proof of our answer we can say:
0.1 = 10/100 *then*:
0.1 · 0.1 = 10/100 · 10/100 = 0/100 = 0.00 = 0.0
Step 3: The answer can also be written as:
0.0 = 0.00 = 0 = 0/100 = 0%
Conclusion: We started out with two decimals and now have 0 because the difference of 0.1 and 0.1 is the number **0**.
0.1 · 0.1 = 0

SUBTRACT DECIMALS Question 2

A decimal is also a percentage(%).
A percentage(%) is a part of 100; the number 1 is 100%, the number 2 is 200%, the fraction 1/2 is 50%.
A decimal is written as:
0.1 or 0.10 or .1 or .10
1 = 1.0 = 1.00 = 100/100 = 100%
0.1 = 0.10 = .1 = .10 = 10/100 = 10%
0.01 = .01 = 1/100 = 1%
0.001 = .001 = 1/1000 = 0.1%
As the decimal point(.) moves to the right the number becomes larger.
As the decimal point(.) moves to the left the number becomes smaller.
The places to the right of the decimal point(.) are place holders for ones, tens, hundreds, etc., just as the place holders for whole numbers such as 1, 10, 100, 1000.

0.2 · 0.1 =
Step 1: We can think of the 2 decimals as 2 numbers and we get the following:
  0.2
<u>- 0.1</u>
  0.1
Step 2: As a proof of our answer we can say:
0.2 = 20/100 AND 0.1 = 10/100 *then*:
0.2 · 0.1 = 20/100 · 10/100 = 10/100 = 0.10 = 0.1
Step 3: The answer can also be written as:
0.1 = 0.10 = .1 = .10 = 10/100 = 10%
Conclusion: We started out with two decimals and now have a new decimal.
0.2 · 0.1 = 0.1

MULTIPLY DECIMALS Question 1

A decimal is also a percentage(%).
A percentage(%) is a part of 100; the number 1 is 100%, the number 2 is 200%, the fraction 1/2 is 50%.
A decimal is written as:
0.1 or 0.10 or .1 or .10
1 = 1.0 = 1.00 = 100/100 = 100%
0.1 = 0.10 = .1 = .10 = 10/100 = 10%
0.01 = .01 = 1/100 = 1%
0.001 = .001 = 1/1000 = 0.1%
As the decimal point(.) moves to the right the number becomes larger.
As the decimal point(.) moves to the left the number becomes smaller.
The places to the right of the decimal point(.) are place holders for ones, tens, hundreds, etc., just as the place holders for whole numbers such as 1, 10, 100, 1000.

0.1 x 0.1 =
Step 1: We can think of the 2 decimals as 2 numbers and we get the following:

```
  0.1
x 0.1
  01
0 00
0.01
```

Note: When two decimals are multiplied, the decimal places in the result is the sum of the decimal places in each decimal. In this question, each decimal has one decimal place so the sum is 2 decimal places.
Step 2: As a proof of our answer we can say:
0.1 = 10/100 *then*:

$$0.1 \times 0.1 = \frac{10}{100} \times \frac{10}{100} = \frac{10 \times 10}{100 \times 100} = \frac{100}{10000} = \frac{100/100}{10000/100} = \frac{1}{100} = 0.01$$

Step 3: The answer can also be written as:
0.01 = .01 = 1/100 = 1%
Conclusion: We started out with two decimals and now have a new decimal.
0.1 x 0.1 = 0.01

MULTIPLY DECIMALS Question 2

A decimal is also a percentage(%).
A percentage(%) is a part of 100; the number 1 is 100%, the number 2 is 200%, the fraction 1/2 is 50%.
A decimal is written as:
0.1 or 0.10 or .1 or .10
1 = 1.0 = 1.00 = 100/100 = 100%
0.1 = 0.10 = .1 = .10 = 10/100 = 10%
0.01 = .01 = 1/100 = 1%
0.001 = .001 = 1/1000 = 0.1%
As the decimal point(.) moves to the right the number becomes larger.
As the decimal point(.) moves to the left the number becomes smaller.
The places to the right of the decimal point(.) are place holders for ones, tens, hundreds, etc., just as the place holders for whole numbers such as 1, 10, 100, 1000.

0.2 x 0.1 =
Step 1: We can think of the 2 decimals as 2 numbers and we get the following:

$$\begin{array}{r} 0.2 \\ \times\ 0.1 \\ \hline 02 \\ 0\ 00 \\ \hline 0.02 \end{array}$$

Note: When two decimals are multiplied, the decimal places in the result is the sum of the decimal places in each decimal. In this question, each decimal has one decimal place so the sum is 2 decimal places.
Step 2: As a proof of our answer we can say:
0.2 = 20/100 AND 0.1 = 10/100 *then*:

$$0.2 \times 0.1 = \frac{20}{100} \times \frac{10}{100} = \frac{20 \times 10}{100 \times 100} = \frac{200}{10000} = \frac{200/100}{10000/100} = \frac{2}{100} = 0.02$$

Step 3: The answer can also be written as:
0.02 = .02 = 2/100 = 2%
Conclusion: We started out with two decimals and now have a new decimal.
0.2 x 0.1 = 0.02

DIVIDE DECIMALS Question 1

A decimal is also a percentage(%).
A percentage(%) is a part of 100; the number 1 is 100%, the number 2 is 200%, the fraction 1/2 is 50%.
A decimal is written as:
0.1 or 0.10 or .1 or .10
1 = 1.0 = 1.00 = 100/100 = 100%
0.1 = 0.10 = .1 = .10 = 10/100 = 10%
0.01 = .01 = 1/100 = 1%
0.001 = .001 = 1/1000 = 0.1%
As the decimal point(.) moves to the right the number becomes larger.
As the decimal point(.) moves to the left the number becomes smaller.
The places to the right of the decimal point(.) are place holders for ones, tens, hundreds, etc., just as the place holders for whole numbers such as 1, 10, 100, 1000.

0.1 ÷ 0.1 =
Step 1: We can think of the 2 decimals as 2 numbers. First we will move the decimal point to the right as follows:
0.1 becomes 01.0 and 01.0 = 1.0 = 1 then we get the following:

$$\begin{array}{r|l} & \underline{1} \\ 1 & 1 \\ & \underline{1} \\ & 0 \end{array}$$

Note: When **these** two decimals are divided, the decimal point(.) in the answer moves to the right.
Step 2: As a proof of our answer we can say:
0.1 = 10/100 *then*:

$$0.1 \div 0.1 = \frac{10/100}{10/100} = \frac{10}{100} \times \frac{100}{10} = \frac{10 \times 100}{100 \times 10} = \frac{1000}{1000} = \frac{1000/1000}{1} = \frac{1}{1} = 1 = 1.0$$

Step 3: The answer can also be written as:
1.0 = 1.00 = 1 = 100/100 = 100%
Conclusion: We started out with two decimals and now have a whole number.
0.1 ÷ 0.1 = 1.0

DIVIDE DECIMALS Question 2

A decimal is also a percentage(%).
A percentage(%) is a part of 100; the number 1 is 100%, the number 2 is 200%, the fraction 1/2 is 50%.
A decimal is written as:
0.1 or 0.10 or .1 or .10
1 = 1.0 = 1.00 = 100/100 = 100%
0.1 = 0.10 = .1 = .10 = 10/100 = 10%
0.01 = .01 = 1/100 = 1%
0.001 = .001 = 1/1000 = 0.1%
As the decimal point(.) moves to the right the number becomes larger.
As the decimal point(.) moves to the left the number becomes smaller.
The places to the right of the decimal point(.) are place holders for ones, tens, hundreds, etc., just as the place holders for whole numbers such as 1, 10, 100, 1000.

0.2 ÷ 0.1 =
Step 1: We can think of the 2 decimals as 2 numbers. First we will move the decimal point to the right as follows:
0.2 becomes 02.0 and 02.0 = 2.0 = 2; 0.1 becomes 01.0 and 01.0 = 1.0 = 1; then we get the following:

```
  2
1 | 2
  2
  0
```

Note: When **these** two decimals are divided, the decimal point(.) in the answer moves to the right.
Step 2: As a proof of our answer we can say:
0.2 = 20/100 AND 0.1 = 10/100 *then*:

$$0.2 \div 0.1 = \frac{20/100}{10/100} = \frac{20}{100} \times \frac{100}{10} = \frac{20 \times 100}{100 \times 10} = \frac{2000}{1000} = \frac{2000/1000}{1000/1000} = \frac{2}{1} = 2 = 2.0$$

Step 3: The answer can also be written as:
2.0 = 2.00 = 2 = 200/100 = 200%
Conclusion: We started out with two decimals and now have a whole number.
0.2 ÷ 0.1 = 2.0