

Decimals

Title: Decimals

Objectives: Students will be able to perform operations using decimals

Materials:

Teacher notes and script (*This page and next*)

Student study guide (*1 copy per student*)

Student worksheet (*1 copy per student.*)

Overheads (*Make transparencies*)

Previous Knowledge Needed:

Important Concepts/Methods:

To add or subtract decimals you need to line up the decimals places, then add or subtract as usual. Bring the decimal place straight down in the answer.

To multiply decimals, multiply the numbers as you normally would, then count the total number of decimal places in the problem and put that number of decimals in your answer.

To divide decimals, change your divisor (the number you're dividing by) into a whole number by moving the decimal point to the end of the number. Next, move the decimal in your dividend (the number you're dividing into) that same number of places. Divide as usual then move your decimal point straight up into your answer.

Remember with decimals that you can add zero to the end of a problem when you need to.

Script:

You work out decimals the same way that you do regular number, but you need to keep track of where the decimal goes. Let's look at the first problem. (*Put up the overhead and read the problem.*)

- 1) $23.68 + 124.2$
a) 14.788
b) 147.88
c) 361.0
d) 36.10

The first step is to rewrite the problem lining up the decimal places. (*Write the problem on the overhead, and have students do the same on their papers.*) Now we'll add it. Remember if there's an empty space it's a zero. (*Add the problem and have students do the same.*) Our numbers are 1-4-7-8-8, so now we need to bring the decimal straight down between the 7 and the eight, so our answer is 147.88. (*Write the correct answer and be sure students do the same.*) Any questions? (*Answer any questions the students have.*)

The next problem is multiplication. Let's read it over. (*Put up the overhead and read the problem.*)

- 2) $22.3(1.2)$
a) 2676
b) 2.676
c) 26.76
d) 267.6

Multiplication is easy. We don't need to worry about the decimals till we're finished. We just need to multiply the numbers as we normally would. (*Work out the problem and make sure students do the same on their papers.*) We get 2-6-7-6, but we need to figure out where to put the decimal. We need to look back at our problem and count how many decimal places we have. (*Circle the 3 and the 2 to show the students what you*

Decimals

mean, and have them circle the same on their papers.) We have two decimal places in the problem, so we need two decimal places in our answer. (Put the decimal where it belongs and have students do the same.) So our answer is 26.76. Any questions? (Answer any questions the students have.)

Now let's look at an example of subtracting. *(Put up the overhead and read the problem.)*

3) $14.23 - 12.897$

- a) 1.347
- b) 12.526
- c) 1.333
- d) 1.526

We need to rewrite the problem lining up the decimal places. *(Write problem on overhead and have students do the same.)* Since we're subtracting a number with more decimal places, we need to add zero's at the end of the first number. Now we subtract and get the numbers 1-3-3-3. We just bring the decimal down and get the answer 1.333. *(Answer any questions the students have.)*

Common Mistakes:

Let's look at the mistakes in the other answers. In the first problem the right answer was b. A has the decimal in the wrong place. For c and d they lined up the numbers wrong.

In the second problem, they just put the decimal in the wrong place.

Student Problems:

Try the next three problems on your own. *(Give students time to try the problems.)*
(Put overhead up and either work out problems or give students the opportunity to come up and explain them. Make sure they do all steps.)

Assignment:

(Hand out assignment sheet. Either give students time to do and then discuss their problems, or give as homework and collect the next day.)

Decimals

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2) $22.3(1.2)$

a) 2676

b) 2.676

c) 26.76

d) 267.6

3) $14.23 - 12.897$

a) 1.347

b) 12.526

c) 1.33

d) 1.526

4) $0.0138 \div 0.06$

a) 0.23

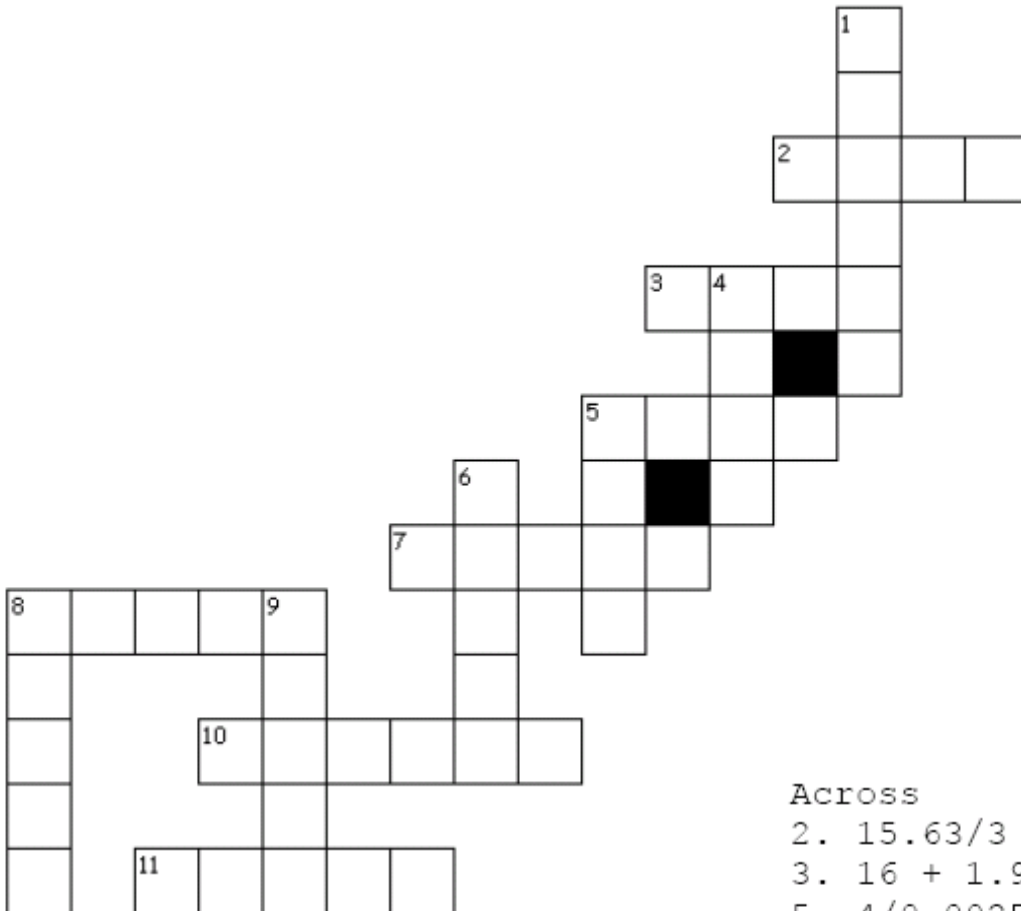
b) 0.023

c) 0.325

d) 3.25

Let me show what I know!

Solve each problem. Put the answers in the crossword. Remember that the decimal point gets its own square.



Across

2. $15.63 \div 3$
 3. $16 + 1.9$
 5. $4 \div 0.0025$
 7. $0.078 + 1.63$
 8. $3.5(6.5)$
 10. $0.009 - 0.0009$
 11. $0.39 - 0.004$

Down

1. $1.4 + 76.897$
 4. $15.8 \div 0.002$
 5. $1441.2 \div 1.2$
 6. $5.4(.92)$
 8. $120.9 - 99.66$
 9. $70.21 - 15.98$

Let me show what I know!

Solve each problem. Put the answers in the crossword. Remember that the decimal point gets its own square.

The crossword puzzle grid contains the following handwritten answers:

- 1. 78
- 2. 5.21
- 3. 17.9
- 4. 7.9
- 5. 1600
- 6. 420
- 7. 1.708
- 8. 22.75
- 9. 91
- 10. 0.009 - 0.0009
- 11. 0.386

Across

2. $15.63/3$
3. $16 + 1.9$
5. $4/0.0025$
7. $0.078 + 1.63$
8. $3.5(6.5)$
10. $0.009 - 0.0009$
11. $0.39 - 0.004$

Down

1. $1.4 + 76.897$
4. $15.8/0.002$
5. $1441.2/1.2$
6. $5.4(.92)$
8. $120.9 - 99.66$
9. $70.21 - 15.98$

Ideas that I'm going to study and learn.

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4) $0.0138 \div 0.06$

a) 0.23

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1) $23.68 + 124.2$

a) 14.788

b) 147.88

c) 361.0

d) 36.10

$$\begin{array}{r} 23.68 \\ + 124.2 \\ \hline 147.88 \end{array}$$

2) $22.3(1.2)$

a) 2676

b) 2.676

c) 26.76

d) 267.6

$$\begin{array}{r} 22.3 \\ \times 1.2 \\ \hline 446 \\ 2230 \\ \hline 26.76 \end{array}$$

3) $14.23 - 12.897$

a) 1.347

b) 12.526

c) 1.333

d) 1.526

$$\begin{array}{r} ^3 ^{11} ^{12} ^1 \\ 14.230 \\ - 12.897 \\ \hline 1.333 \end{array}$$

4) $0.0138 \div 0.06$

a) 0.23

b) 0.023

c) 0.325

d) 3.25

$$\begin{array}{r} 0.23 \\ 0.06 \overline{) 0.0138} \\ \underline{12} \\ 18 \end{array}$$

