

LESSON 1: REVIEW OF DECIMALS: ADDITION AND SUBTRACTION

Weekly Focus: whole numbers and decimals

Weekly Skill: place value, add, subtract, multiply

Lesson Summary: In the warm up, students will solve a word problem. In Activity 1, they will do a matching activity to review vocabulary. In Activity 2, they will review place value for decimals with a worksheet in class and another for homework. In Activity 3, they will practice word problems from the pages in the workbook. In Activity 4, they will practice multiplication of decimals. Activity 5 is an application activity. Estimated time for the lesson is 2 hours.

Materials Needed for Lesson 1:

- *Mathematical Reasoning Test Preparation for the 2014 GED Test Workbook by Steck-Vaughn, pages 22-23*
- Place Value Video (about 4 minutes)
- Worksheet 1.1 Ordering Decimals Visually (attached)
- Worksheet 1.2 Ordering Decimals (attached)
- Multiplying Decimals Video (about 4 minutes)
- Worksheet 1.3 Multiplying Decimals (attached)
- Graph Paper
- Exit Ticket (attached)

Objectives: Students will be able to:

- Practice addition and subtraction of decimals
- Understand and explain math vocabulary about computation words
- Compare and place decimals on a number line
- Multiply decimals
- Solve and graph a word problem with decimals

ACES Skills Addressed: N, CT, LS

CCRS Mathematical Practices Addressed: Building Solution Pathways, Mathematical Fluency

Levels of Knowing Math Addressed: Intuitive, Abstract, and Application

Notes:

You can add more examples if you feel students need them before they work. Any ideas that concretely relates to their lives make good examples.

For more practice as a class, feel free to choose some of the easier problems from the worksheets to do together. The “easier” problems are not necessarily at the beginning of each worksheet. Also, you may decide to have students complete only part of the worksheets in class and assign the rest as homework or extra practice.

The GED Math test is 115 minutes long and includes approximately 46 questions. The questions have a focus on quantitative problem solving (45%) and algebraic problem solving (55%).

Students must be able to understand math concepts and apply them to new situations, use logical reasoning to explain their answers, evaluate and further the reasoning of others, represent real world problems algebraically and visually, and manipulate and solve algebraic expressions.

This computer-based test includes questions that may be multiple-choice, fill-in-the-blank, choosing from a drop-down menu, or dragging-and-dropping the response from one place to another.

The purpose of the GED test is to provide students with the skills necessary to either further their education or be ready for the demands of today's careers.

Activities:

Warm-up: Solve the decimal problem	Time: 10 Minutes
<p><u>Write on the board:</u> You buy the following grocery items this week: one lb. of butter for \$2.59, three lbs. of potatoes for \$1.49, one 14 oz. box of cereal for \$3.79, and one loaf of bread for \$2.29. (No calculator)</p> <p><u>Basic Questions:</u> What is the cost of the four items? (\$10.16) What is the difference in cost between the butter and the potatoes? (\$1.10)</p> <p><u>Extension Questions:</u> If you buy $\frac{1}{2}$ a pound of butter, how many ounces will you get? (8 oz.) If you pay 7% in taxes, what will your total bill be? (\$10.87)</p>	

Activity 1: Vocabulary	Time: 5-10 Minutes
<p>This activity can be projected on the board and done as a whole class. Have students volunteer to write answers. Also note that one extra choice is given that will not be used to make the activity a little more challenging.</p> <p>You may also choose to print out the page for students to have AFTER completing the whole-class exercise.</p> <p>Answers: 1C, 2B, 3D, 4F, 5G, 6A</p>	

<p>1. Finding the sum is _____</p> <p>2. Finding the difference is _____</p> <p>3. Finding the quotient is _____</p> <p>4. Finding the product is _____</p> <p>5. Whole Numbers are _____</p> <p>6. Place Value means _____</p>	<p>a. The value of a digit in a certain place in a number</p> <p>b. Subtracting numbers</p> <p>c. Adding numbers</p> <p>d. Dividing numbers</p> <p>e. Numbers between negative 100 and positive 100</p> <p>f. Multiplying numbers</p> <p>g. Positive numbers written with digits 0 through 9</p>
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Activity 2: Place Value Review

Time: 20-25 Minutes

1. Write the following number on the board: 876,543.219. Ask the students questions about place value such as: What digit is in the hundreds place? ten thousands place? etc.
2. Watch **Place Value Video** (4 minutes).
3. Do **Worksheet 1.1 Ordering Decimals Visually** (10 minutes). Then, write a number line on the board from 0 to 1. Mark the halfway point. Choose a few of the questions from the worksheet and have students put the numbers at the appropriate place on the line.

***Print copies of Worksheet 1.1 directly from the computer. The shading gets lost when making copies of copies.**

4. Give **Worksheet 1.2 Ordering Decimals** for homework. Do two problems together and then assign the rest as homework.

Teacher Tip: Have the students write in zeros as placeholders. This makes it easier to compare so all the numbers look the same. In the example, you get 81.010, 82.000, 81.858, 81.860.

Activity 3: Decimals Place Value, Addition and Subtraction Practice

Time: 15 Minutes

Have students work independently or in small groups to complete questions 1 – 9 in the **Steck-Vaughn workbook (pages 22-23)**. Circulate to help. Review any questions that students found challenging.

Worksheet 1.1 Ordering Decimals Visually

Put the boxes in order from least to greatest based on the shaded amount.

Ex)

A		B		C		D		Small	<u>0.03 - A</u>
									<u>0.15 - D</u>
									<u>0.6 - B</u>
								Large	<u>0.9 - C</u>

1)

A		B		C		D		Small	_____

								Large	_____

2)

A		B		C		D		Small	_____

								Large	_____

3)

A		B		C		D		Small	_____

								Large	_____

4)

A		B		C		D		Small	_____

								Large	_____

5)

A		B		C		D		Small	_____

								Large	_____

6)

A		B		C		D		Small	_____

								Large	_____

7)

A		B		C		D		Small	_____

								Large	_____

8)

A		B		C		D		Small	_____

								Large	_____

Worksheet 1.1 Ordering Decimals Visually **Answers**

Answers

Ex. A,D,B,C

1. A,D,C,B

2. D,A,C,B

3. A,D,C,B

4. A,D,B,C

5. A,B,D,C

6. A,C,B,D

7. B,A,D,C

8. B,A,C,D

Worksheet 1.2 Ordering Decimals

Order the numbers from least to greatest.

- Ex)** A. 81.01
B. 82
C. 81.858
D. 81.86
- 1)** A. 91.855
B. 91.18
C. 91.8
D. 91.562
- 2)** A. 7
B. 7.8
C. 7.463
D. 7.3
- 3)** A. 10.954
B. 11
C. 10.663
D. 10.379
- 4)** A. 5.222
B. 5.806
C. 6
D. 5.81
- 5)** A. 11.6
B. 11.895
C. 11.783
D. 11.387
- 6)** A. 3.2
B. 3.562
C. 4
D. 3.6
- 7)** A. 8.5
B. 8.4
C. 8.524
D. 8.261
- 8)** A. 94.6
B. 95
C. 94.78
D. 94.246
- 9)** A. 48
B. 48.22
C. 48.41
D. 48.916
- 10)** A. 4.609
B. 4.727
C. 5
D. 4.573
- 11)** A. 30.743
B. 30.4
C. 30.565
D. 30.333
- 12)** A. 26.386
B. 26.277
C. 26.78
D. 26.624
- 13)** A. 23.375
B. 23.32
C. 23.25
D. 23.368
- 14)** A. 2.471
B. 2.39
C. 2.394
D. 2.4

Example Answer is: A, C, D, B

Worksheet 1.2 Ordering Decimals **Answers**

Answers

Ex. A,C,D,B

1. B,D,C,A

2. A,D,C,B

3. D,C,A,B

4. A,B,D,C

5. D,A,C,B

6. A,B,D,C

7. D,B,A,C

8. D,A,C,B

9. A,B,C,D

10. D,A,B,C

11. D,B,C,A

12. B,A,D,C

13. C,B,D,A

14. B,C,D,A

Activity 4: Decimals Multiplication

Time: 30 Minutes

1) Write on the board

Example A: *What is one quarter of \$8?* Have the students tell you the answer. Ask the students what 1 quarter is in decimal form. Then write the problem in words and explain as you go along. Say "1 quarter of 8 is 2" and write $0.25 \times 8 = 2$. Then do computation the traditional way of $0.25 \times 8 = 2.00$ and ask how you know where the decimal point goes. They should say you move it over twice from the right since there are two decimal places total. The idea here is to connect the computation and moving the point to a question and answer for which they already know the answer.

Example B: Repeat for *What is one half of \$1.50?* If students need help thinking of the answer, give them clues like asking what half of \$1 is and half of \$0.50. Then write as computation: 0.5×1.50 and have them help you solve.

2) Show **Multiplying Decimals Video** on why multiplying decimals less than 1 gives a smaller number (about 3 minutes).

3) Start **Worksheet 1.3 Multiplying Decimals**. Have students begin with problems 11 and 12 first; then, move to problems 1-10. Assign the rest for homework.

Activity 5 Application: Graph Gas Usage

Time: 20 Minutes

- 1) Ask students what the price of one gallon of gas is currently. Make a T-chart with X as the number of gallons and Y as the price.

X= number of gallons	Y= cost
1	
5	
10	
15	
20	
25	
30	

Together figure out the cost of purchasing 5 gallons. Write the information in the table with the number of gallons in the X column and the cost in the Y column.

- 2) Hand out **Graph Paper**. Have students compute and fill out the table for the cost of 10, 15, 20, and 30 gallons. Then have students make a line graph of the cost of gas. (Note: you may need to walk students through creating this line graph.)

- 3) Extension or Alternative Activity: If students know how many gallons of gas they themselves use, have them graph it for one, two, three and four weeks. Then extend computation to one year.

Exit Ticket

Time: 5 Minutes

Minnesota sometimes has snow on the ground for 6 months out of a year. What portion of a year is this? Write a multiplication equation (a number sentence) with decimals to show how to solve this problem. (See the Handout for students below).

Answer: $0.5 \times 12 = 6$

Worksheet Lesson 1.3 Multiplying Decimals

Solve each problem.

$$\begin{array}{r} 1) \quad 63.9 \\ \quad \quad \underline{7.0} \end{array}$$

$$\begin{array}{r} 2) \quad 44.84 \\ \quad \quad \underline{9.84} \end{array}$$

$$\begin{array}{r} 3) \quad 88.6 \\ \quad \quad \underline{5.01} \end{array}$$

$$\begin{array}{r} 4) \quad 39.6 \\ \quad \quad \underline{5.20} \end{array}$$

$$\begin{array}{r} 5) \quad 28.15 \\ \quad \quad \underline{5.5} \end{array}$$

$$\begin{array}{r} 6) \quad 14.36 \\ \quad \quad \underline{4.9} \end{array}$$

$$\begin{array}{r} 7) \quad 63.14 \\ \quad \quad \underline{2.08} \end{array}$$

$$\begin{array}{r} 8) \quad 18.65 \\ \quad \quad \underline{6.8} \end{array}$$

$$\begin{array}{r} 9) \quad 16.92 \\ \quad \quad \underline{8.4} \end{array}$$

$$\begin{array}{r} 10) \quad 80.1 \\ \quad \quad \underline{2.8} \end{array}$$

$$\begin{array}{r} 11) \quad 5.9 \\ \quad \quad \underline{3.9} \end{array}$$

$$\begin{array}{r} 12) \quad 5.6 \\ \quad \quad \underline{6.2} \end{array}$$

Answers

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

Worksheet Lesson 1.3 Multiplying Decimals **Answers**



Multiplying with Decimals

Name: **Answer Key**

Solve each problem.

Answers

$$\begin{array}{r} 1) \quad 63.9 \\ \quad \underline{! \quad 7.0} \\ \quad \quad 0 \\ + 44730 \\ \hline 447.30 \end{array}$$

$$\begin{array}{r} 2) \quad 44.84 \\ \quad \underline{! \quad 9.84} \\ \quad \quad 17936 \\ \quad \quad 358720 \\ + 4035600 \\ \hline 441.2256 \end{array}$$

$$\begin{array}{r} 3) \quad 88.6 \\ \quad \underline{! \quad 5.01} \\ \quad \quad 886 \\ \quad \quad 0 \\ + 443000 \\ \hline 443.886 \end{array}$$

1. 447.30

2. 441.2256

3. 443.886

4. 205.920

5. 154.825

6. 70.364

7. 131.3312

8. 126.820

9. 142.128

10. 224.28

11. 23.01

12. 34.72

$$\begin{array}{r} 4) \quad 39.6 \\ \quad \underline{! \quad 5.20} \\ \quad \quad 0 \\ \quad \quad 7920 \\ + 198000 \\ \hline 205.920 \end{array}$$

$$\begin{array}{r} 5) \quad 28.15 \\ \quad \underline{! \quad 5.5} \\ \quad \quad 14075 \\ + 140750 \\ \hline 154.825 \end{array}$$

$$\begin{array}{r} 6) \quad 14.36 \\ \quad \underline{! \quad 4.9} \\ \quad \quad 12924 \\ + 57440 \\ \hline 70.364 \end{array}$$

$$\begin{array}{r} 7) \quad 63.14 \\ \quad \underline{! \quad 2.08} \\ \quad \quad 50512 \\ \quad \quad 0 \\ + 1262800 \\ \hline 131.3312 \end{array}$$

$$\begin{array}{r} 8) \quad 18.65 \\ \quad \underline{! \quad 6.8} \\ \quad \quad 14920 \\ + 111900 \\ \hline 126.820 \end{array}$$

$$\begin{array}{r} 9) \quad 16.92 \\ \quad \underline{! \quad 8.4} \\ \quad \quad 6768 \\ + 135360 \\ \hline 142.128 \end{array}$$

$$\begin{array}{r} 10) \quad 80.1 \\ \quad \underline{! \quad 2.8} \\ \quad \quad 6408 \\ + 16020 \\ \hline 224.28 \end{array}$$

$$\begin{array}{r} 11) \quad 5.9 \\ \quad \underline{! \quad 3.9} \\ \quad \quad 531 \\ + 1770 \\ \hline 23.01 \end{array}$$

$$\begin{array}{r} 12) \quad 5.6 \\ \quad \underline{! \quad 6.2} \\ \quad \quad 112 \\ + 3360 \\ \hline 34.72 \end{array}$$

Exit Ticket

Minnesota sometimes has snow on the ground for 6 months out of a year. What portion of a year is this? Write a multiplication equation (a number sentence) with decimals to show how to solve this problem.

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