UNDERSTANDING DECIMALS

Decimals, like fractions, show a part of something. Money is a common example. Dollars and cents are separated by a decimal point: dollars (whole numbers) are to the left of the decimal point, cents (parts of a whole dollar) are to the right. When reading a decimal number, read the whole number, say “and” for the decimal point then read the decimal parts followed by their place value. (Numbers to the right of a decimal point are parts; the further the numbers extend to the right of the decimal point, the smaller the part.)

The location of the number in relation of the decimal point is called its place value.

\[
\begin{align*}
3.1 &= 3 \frac{1}{10} & 3.1 &= \text{three and one tenth} \\
3.01 &= 3 \frac{1}{100} & 3.01 &= \text{three and one hundredth} \\
3.001 &= 3 \frac{1}{1000} & 3.001 &= \text{three and one thousandth} \\
3.0001 &= 3 \frac{1}{10000} & 3.0001 &= \text{three and one ten thousandth}
\end{align*}
\]

Each additional place adds another zero to the fraction.

Example 1: Seven tenths

To translate words into decimal numbers

1) write the whole number (if any)
2) put in the decimal point
3) determine the place value
   of the decimal (10ths = 1 place)
4) write the decimal in its place

Example 2: Eleven and nine hundredths

1) write the whole number
2) put in the decimal point
3) determine place value
   (hundredths = 2 places)
4) write decimal in its place
5) fill in empty places with zeroes

Practice:
1) six and nine tenths
2) ten and eight tenths
3) fifteen and fifteen hundredths
4) twenty seven and five thousandths
5) one and three hundredths
6) one hundred fifty and nineteen ten thousandths
ADDING AND SUBTRACTING DECIMALS

When adding and subtracting decimals you may rewrite these problems vertically and add zeroes to keep columns straight.

**Remember:**
- to line up the decimal points and immediately put the decimal point in your answer space directly below those in the question.
- whole numbers go to the left of any decimal points.
- you may add a decimal point (and zeroes) to the right of any whole number without changing its value.
- if an answer ends in one or more zeroes to the right of the decimal point, clean up your answer by eliminating them. If there are no numbers (other than zero) following the decimal point, you can eliminate it as well.

**Example 1:** 7 + .03 + .721 =

Step 1) rewrite, with added zeroes, and line up the decimal points

```
  7.000
+ .030
+ .721
```

Step 2) bring down the decimal point

Step 3) add (from right to left)

```
   7.751
```

**Example 2:** 99.2 - .763 =

Step 1) rewrite (add zeroes) and line up decimal points

```
 99.200
- .763
```

Step 2) bring down the decimal point

Step 3) subtract (from right to left)

```
  98.437
```

**Example 3:** 29.1 + 3 + .9 =

Step 1) rewrite with added zeroes

```
  29.1
  3.0
+ .9
```

Step 2) bring down the decimal point

Step 3) add

```
  33.0
```

Step 4) clean up your answer by removing the decimal point and zero

```
  Answer: 33
```

Note: If you can work these problems without rewriting, you can save valuable time.
To subtract from a whole number, add a decimal point to the right of the whole number and as many zeroes as needed. Line up the decimal points in the problem, then, starting from the right, subtract. Borrow if necessary.

Work these problems:

1) \(0.2 + 0.13 + 0.5 = \) _____  
2) \(7 - 0.28 = \) _____  
3) \(0.6 + 9 + 0.31 = \) _____

4) \(85.03 - 0.002 = \) _____  
5) \(0.868 - 0.518 = \) _____  
6) \(17.1 - 0.139 = \) _____

7) \(10.67 + 9.33 = \) _____  
8) \(9 + 3.4 + 0.7 = \) _____  
9) \(7.5 - 1.095 = \) _____

10) \(25.09 + 0.03 + 1.62 = \) _____  
11) \(8.2 - 0.009 = \) _____  
12) \(73 + 0.008 + 0.23 = \) _____

13) \(6.7 + 0.67 + 0.067 = \) _____  
14) \(14.54 - 9.76 = \) _____  
15) \(82.62 - 3.909 = \) _____

16) \(1 - 0.005 = \) _____  
17) \(1.09 + 0.036 + 0.17 = \) _____  
18) \(70.07 - 1.24 = \) _____

19) \(1.942 - 0.848 = \) _____  
20) \(83.006 - 0.47 = \) _____  
21) \(123 - 9.42 = \) _____

22) \(4 + 8.917 + 0.44 + 0.9130 = \) _____  
23) \(0.2220 + 2 + 0.022 + 2.02 = \) _____

24) \(7.005 + 0.35 + 15 + 3.2 = \) _____  
25) \(20.35 + 0.0089 + 1.35 + 0.4 = \) _____

26) \(9 - 0.635 = \) _____  
27) \(8.04 - 7.961 = \) _____  
28) \(210 - 0.3 = \) _____

29) \(0.65 + 8 + 7.15 + 0.2 = \) _____  
30) \(2 + 0.1 + 0.36 + 7.640 = \) _____
WORD PROBLEMS: ADDITION AND SUBTRACTION

1) Deanna carried boxes of nails weighing 23.2 pounds, 15.14 pounds and 6.70 pounds. Find the total weight.

2) On the way to work Sandy’s odometer read 10,515.2. Coming home it read 10,579. How far did she travel?

3) The price of gasoline jumped from $2.19 per gallon to $4.37 per gallon in one month. How much was the increase?

4) When Bea started work, the thermometer read 72.3 degrees. By lunch it was 26.7 degrees warmer. How hot was it?

5) Clara’s new spud wrench cost $33.78 plus $3.04 tax plus $4.37 shipping. How much did she pay?

6) Find the combined weight of 6 boxes of screws weighing 2.4 lbs., 5.1 lbs., 3.25 lbs., 1.9 lbs., 6.75 lbs., and 4.75 lbs.

7) From a stack of bricks weighing 3,714 pounds, Aminah removed bricks weighing 647.5 pounds. What was the weight of the remaining bricks?

8) Tamara cut 27.75 inches from a 36 inch piece of sheet metal. How much was left?

Extra Effort

9) One morning Camille made 4 wheel barrow trips carrying a combined weight of 277.5 lbs. If the first 3 trips weighed 51.3 lbs., 65.61 lbs., and 87.5 lbs. respectively, what was the weight of the fourth?
MULTIPLYING DECIMALS

To multiply decimals it is easier to rewrite the problems vertically, lining up the last numbers on the right side, then work the problem. (You may choose to write the problem in whole numbers as you would any multiplication problem and then insert the decimal points.) Multiply as you would with any problem, then determine where to put the decimal point in your answer. Instead of bringing down the decimal point as you do for addition and subtraction, count the total number of places to the right of the decimal points in your problem and then put that same number of places to the right of the decimal point in your answer. (Begin at the right and move to the left). Then eliminate unnecessary zeroes and/or decimal points at the end of any answer.

Example 1: 26.25 x 3.1 =

Step 1) rewrite

\[
\begin{align*}
26.25 \\
\times 3.1
\end{align*}
\]

Step 2) multiply

\[
\begin{align*}
2625 \\
7875 \\
\hline
81375
\end{align*}
\]

Step 3) count the number of decimal places in the problem

there are 3 places in the problem

Step 4) insert the decimal point

\[
81.375
\]

Work these problems:

1) 6 x .3 = _______  
2) .25 x 7 = _______  
3) .031 x 9 = _______

4) 75 x .45 = _______  
5) 1.8 x .47 = _______  
6) 5.03 x 8 = _______

7) 6.61 x 1.4 = _______  
8) .9 x 23.2 = _______  
9) 651 x .06 = _______

10) 200.2 x .707 = _______  
11) .836 x .28 = _______  
12) .056 x 5.6 = _______
If there are fewer numbers in your answer than there are decimal places in the question, add zeroes to the left until you have enough numbers.

**Example 2:** \(0.075 \times 0.03\)

1. **Step 1)** rewrite \(0.075\)
2. **Step 2)** multiply \(x0.03\)
3. **Step 3)** count decimal places there are 5 places in the problem: add 2 zeroes
4. **Step 4)** insert the decimal point \(0.00225\)

**Work these problems:**

13) \(0.08 \times 0.8 = \) ______
14) \(0.678 \times 0.123 = \) ______
15) \(0.06 \times 0.553 = \) ______

16) \(0.15 \times 0.47 = \) ______
17) \(0.121 \times 0.36 = \) ______
18) \(1.85 \times 0.03 = \) ______

19) \(0.301 \times 0.21 = \) ______
20) \(0.306 \times 0.3 = \) ______
21) \(0.4 \times 0.346 = \) ______

22) \(0.507 \times 0.12 = \) ______
23) \(0.074 \times 0.3 = \) ______
24) \(0.0112 \times 0.313 = \) ______

Decimal points and/or zeroes at the right end of answers are unnecessary. Eliminate them before writing your final answer.

**Example 3:** \(5 \times 0.2 = 1.0\) Eliminate the zero and the decimal point. Final answer: 1

**Work these problems:**

25) \(0.515 \times 0.6 = \) ______
26) \(7.2 \times 30 = \) ______
27) \(0.234 \times 5 = \) ______

28) \(1.45 \times 0.22 = \) ______
29) \(48.3 \times 40 = \) ______
30) \(0.625 \times 1.2 = \) ______

31) \(0.28 \times 0.365 = \) ______
32) \(0.005 \times 0.6 = \) ______
33) \(31.50 \times 0.16 = \) ______

34) \(32.1 \times 20 = \) ______
35) \(2.6 \times 4.5 = \) ______
36) \(0.117 \times 0.90 = \) ______
DIVIDING DECIMALS

Important things to remember:

1. Eliminate any decimal places outside the dividing box by moving the decimal point all the way to the right (creating a whole number)
2. Whatever you do to numbers outside the box, you must do inside the box (move decimal point if needed)
3. When steps 1 & 2 are completed, look for the decimal point inside the box and transfer it directly above into the answer space.
4. If you cannot divide a number inside the box, hold its answer space with a zero.
5. Once you begin dividing, you must put a number in the answer space for every number in the dividing box.
6. Add zeroes after the last number inside the box if necessary
7. After solving, clean up your answer by eliminating any zeroes standing alone before the decimal point (ex. 0.123) or any decimal point at the end of an answer. (ex. 345)
8. Some numbers repeat. Carry them out to 5 places and then round back to 4 places.

Example 1: 4)3.5

Step 1) make sure that the number outside the box is a whole number (4 is a whole number – no change is required)
Step 2) replicate any changes inside the box (no changes made in this example)
Step 3) put a decimal point in the answer space directly above the one inside the problem

\[
\begin{array}{c}
4)3.5 \\
32 \\
30 \\
28 \\
20 \\
20 \\
\end{array}
\]

Example 2: .80)6.48

Step 1) make .8 a whole number (move decimal point to the right as far as possible)

\[
\begin{array}{c}
.80) \\
6.48 \\
6.40 \\
6.40 \\
6.40 \\
6.40 \\
\end{array}
\]

Step 2) do the same inside the box

\[
\begin{array}{c}
6.48 \\
6.40 \\
6.40 \\
6.40 \\
6.40 \\
\end{array}
\]

Step 3) transfer decimal point to answer space
Example 3: \( .3 \overline{21} \)

Step 1) move decimal point to the right to make 3 a whole number

\[
.3\overline{21} \\
\underline{\times 10} \\
3\overline{210}
\]

Step 2) do the same to the inside number

\[
3\overline{21.0} \\
\underline{\times 10} \\
3\overline{210.}
\]

Step 3) put the decimal point in the answer space

\[
3\overline{210.} \\
\underline{\times 10} \\
\underline{3\overline{210}.}
\]

Step 4) divide

\[
\begin{array}{r}
\text{70.} \\
3\overline{210.} \\
\downarrow \\
21 \\
\downarrow \\
0 \\
\downarrow \\
0 \\
\end{array}
\]

Step 5) clean up your answer

\[
70 \div 70 = 1
\]
Work these problems:

25) \( .8 \div 4.8 \)  
26) \( 2.8 \div .7 = \)  
27) \( .4 \cdot .64 \)  
28) \( .011 \cdot 143 \)  

29) \( 8.6 \div .02 = \)  
30) \( .6 \div 15 \)  
31) \( 15 \div .06 = \)  
32) \( .9 \div 585 \)  

33) \( 88.2 \div .03 = \)  
34) \( .009 \cdot 8.64 \)  
35) \( 46.2 \div .03 = \)  
36) \( 5.56 \div .005 = \)  

Example 4: \( 2 \div .1 \)  

Steps 1 and 2 are not needed  
Step 3) put the decimal point in the answer space  
Step 4) 2 will not go into 1: put a zero in the answer space above the 1, add a zero in the box and divide  

Work these problems:

1) \( .36 \div 9 = \)  
2) \( 2 \cdot .06 \)  
3) \( .08 \div 4 = \)  
4) \( .5 \cdot .09 \)  

5) \( 5.6 \div .532 \)  
6) \( .0013 \div .4 = \)  
7) \( 8 \cdot .368 \)  
8) \( .0182 \div .7 = \)  

9) \( 1 \div 16 = \)  
10) \( 6 \div .222 \)  
11) \( .024 \div .4 = \)  
12) \( .03 \cdot .00021 \)  

Clean Up/Reduce Decimal Answers

Once you have done the math, before recording your answer, be sure it is reduced to the lowest terms. Clean up any dangling decimal points or useless zeroes at the END of a potential answer. Only at the end – other numbers need not be changed.

Ex 1: \( 352 \) (reads as 352 and). It must become 352  
Ex 2: \( 297.0 \) (reads as 297 and nothing). It must become 297  
Ex 3: \( 611.01 \) (reads as 611 and 1 one-hundredth). Stays 611.01

Practice on these numbers. Some need cleaning up while others do not. What should be the correct answer for each?

13) \( 123.010 \)  
14) \( 67.9 \)  
15) \( 58.0 \)  
16) \( 86.00 \)  

17) \( 56.3 \)  
18) \( 130.07 \)  
19) \( 2.4 \)  
20) \( 10. \)  

21) \( 3,472.00 \)  
22) \( 457.001 \)  
23) \( 16.12 \)  
24) \( 23.08 \)
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| 28) | 712. |
| 32) | 800.00 |
| 36) | 63.72 |
| 40) | 1.26008 |

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**Chicago Women in Trades**

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SHORTCUT TO MULTIPLYING AND DIVIDING DECIMALS

Because decimal units are based on multiples of 10, multiplying or dividing decimals by 10s, 100s, or 1,000s can be done quickly by simply moving the decimal point. To multiply, move the point one place to the right for each zero (one space for 10, two spaces for 100, three for 1,000 and so on). This automatically makes the original decimal number larger.

Example 1: 5.2 x 10 =

Step 1) move decimal 1 place to the right (10 has 1 zero) 5.2
Step 2) 5.2 became 52 – this is your answer

Example 2: .137 x 100 =

Step 1) move the decimal point 2 places to the right (100 has 2 zeroes) .137
Step 2) .137 became 13.7 – this is your answer

To divide by 10s, 100s, or 1,000s, move the decimal point in the opposite direction to make the original decimal number smaller.

Example 1: 7.3 ÷ 10 =

Step 1) move the decimal point 1 place to the left (10 has 1 zero) 7.3
Step 2) 7.3 became .73 – this is your answer

Example 2: 87.5 ÷ 100 =

Step 1) move the decimal point 2 places to the left (100 has 2 zeroes) 87.5
Step 2) 87.5 became .875 – this is your answer

Work these problems:

13) 3.7 x 10 = _____ 14) .654 x 10 = _____ 15) 10 x 47.31 = ______ 16) .58 x 100 = _____ 17) 100 x 698.3 = _____ 18) 9.237 x 100 = ______ 19) 1000 x 1.654 = _____ 20) .4487 x 1000 = _____ 21) 1.23 x 1000 = ______ 22) 16.5 ÷ 10 = _____ 23) 8.3 ÷ 10 = _____ 24) .92 ÷ 10 = ______ 25) 39 ÷ 100 = ______ 26) 975 ÷ 100 = ______ 27) 7.5 ÷ 100 = ______ 28) 2.73 ÷ 1000 = _____ 29) 51.6 ÷ 1000 = ______ 30) 91 ÷ 1000 = ______
Extra Effort: Expand this shortcut to 20’s, 30’s, 40’s, 200’s, 300’s etc.
Then try it with .1, .01, .001 and so on........

WORD PROBLEMS: MULTIPLICATION AND DIVISION

1) If placed end to end, eight tacks each .37 mm. long would extend how far?

2) Tammy made $1,275 for 30 hours of work. What is her hourly wage?

3) Kate’s job involved a 23.94 mile round trip each day. By noon on Friday she’d made 4.5 round trips. How far had she traveled?

4) How many sheets of .75 inch plywood can fit in a space 15 inches high?

5) One inch equals 26 mm. How many mm are in 8.5 inches?

6) How many .5 lb. tins can be filled from a 58.5 lb. container?

7) Union carpenters make $39.77 per hour. At this rate, how much would one make for 40 hours?

8) One meter equals 39.37 inches. How many meters are in 255.905 inches?

9) Tax on one dollar is $.085. What is the tax on $400?

10) Janette’s foreman bought lunch for 10 plumbers. Each meal cost $7.97. What was the cost for lunch?

11) Marquisa spent $54.49 for 2 scoops of ice cream for herself and 9 friends. What was the cost per person?
Work these problems:

1) 1.1 x .04 = ______  
2) 17) 69.53  
3) 81.8 x .36 = ______  
4) 41.6 ÷ 1.6 = ______  
5) .33 x .01 = ______  
6) 9.97 ÷ 10 = ______  
7) 9.06 x .045 = ______  
8) 3.5) 16.8  
9) .07 x .99 = ______  
10) 16) 5  
11) 5.6 x .46 = ______  
12) 33.8 ÷ .52 = ______  
13) .028 x .365 = ______  
14) 105 ÷ 5.25 = ______  
15) .12 x .6250 = ______  
16) 1.5 ) .1875  
17) 12.17 x 3.172 = ______  
18) .3 ) .756  
19) .20 x .25 = ______  
20) 6.89 ÷ 100 = ______  
21) .060 x .53 = ______  
22) .001 ÷ .125 = ______  
23) .09 x .0068 = ______  
24) .05 ) .153  
25) .99 x 10 = ______  
26) 4.1) 12.3  
27) .886 x 10 = ______  
28) .25 ) .002  
29) 4.321 x 100 = ______  
30) .19665 ÷ .19 = ______  
31) 16.2 x 45 = ______  
32) 9 ÷ 16 = ______  
33) 18 x 3.45 = ______  
34) 16 ) 15  
35) 40.8 x 15 = ______  
36) 7.32 ÷ 1000 = ______  

Carry division out to 5 places then round back to 4th place:

37) 7 ÷ 9 = ______  
38) 2 ÷ 3 = ______  
39) 12 ) 5  
40) 5 ÷ 6 = ______  
41) 1 ÷ 3 = ______  
42) .136 ÷ .566 = ______  
43) .009 ) 3.05615  
44) .9 ) 5  
45) 6 ) 4.5333
COMPARING DECIMALS

There are several ways to compare decimals. One way is to add zeroes to make them have equal place values.

**Example 1:** compare .06 with .6

.06 .60 (add a zero to make it an equal place value)

.06 reads as 6 hundredths .60 reads as 60 hundredths

60 is more than 6 so .6 is larger than .06

Note: if you added a zero to compare, don’t include it in the answer.

Another way is to think of it as money - .60 = 60 cents while .06 is 6 cents

When there are more than 2 decimal places, cover over all but the first 2 numbers and look at them as money.

**Example 2:** compare .025 with .375

In this case, covering the 5’s shows that .375 is greater/larger than .025

A third way to compare decimals is to think of their values. The closer to the decimal point the first number is, the greater the value of that decimal.

**Example 3:** compare .7 with .87

.7 is seven tenths .8 is eight tenths

8 out of 10 is greater than 7 out of 10

**Practice:**

Using the way that works best for you, circle the smaller decimal in the following:

1) .5 or .15  
2) .09 or .9  
3) .6 or .6667

4) .999 or .9090  
5) .312 or .213  
6) .101 or .02
Practice comparing more than two numbers – rewrite these in order from smallest to largest

7) .8 .9 .1 .6
8) .05 .51 .5 .15
9) .306 .06 .62 .6

10) .02 .21 .2 .012
11) .79 .97 .7 .791
12) .3051 .3105 .35 .310

Note: Whole numbers are, by definition, greater than any decimal or (in the words of a tradeswoman) whole numbers trump decimals any day. Rewrite these in order from smallest to largest:

13) 4.1 41 .14 .41
14) 8.001 8.01 8.101 8.8

15) 3.7 .3715 .73 .715
16) .9063 96.30 .9603 9.603
CONVERTING DECIMALS TO FRACTIONS

Once you can translate decimals into words, it’s easy to convert decimals into fractions and mixed numbers. Whole numbers, of course, stay to the left, but any number to the right of the decimal point becomes the numerator and its place value becomes the denominator. Note: you must then reduce the fraction if possible.

**Example 1:** convert .3 to a fraction

Step 1) write whole numbers (if any) none

Step 2) write 3 as a numerator

Step 3) write the place value as a denominator 3 is in the tenths place

Step 4) reduce if necessary (it isn’t, here)

\[
\frac{3}{10}
\]

**Example 2:** convert 1.08 to a mixed number

Step 1) write the whole number 1

Step 2) write 8 as the numerator

Step 3) write place value as denominator 8 is in the hundredths place

Step 4) reduce

\[
1 \frac{2}{25}
\]

**Practice:** Convert these decimals to fractions/mixed numbers and reduce.

1) .1 _____ 2) 1.7 _____ 3) 3.13 _____ 4) 26.005 _____
5) 39.76 _____ 6) .0075 _____ 7) 347.8 _____ 8) 6.875 _____
9) .375 _____ 10) .5625 _____ 11) 6.003 _____ 12) 2.75 _____
13) .99 _____ 14) .85 _____ 15) .1875 _____ 16) 6.389 _____
CONVERTING FRACTIONS TO DECIMALS

To convert fractions into decimals, start with something you know: \( \frac{1}{2} = .5 \). Figure out how you arrived at that answer. (divide the numerator by the denominator)

Remember:
- Fractions and decimals are parts, not whole numbers, so always **divide the smaller number by the larger one**.
- You may add a decimal point followed by enough zeroes to work the program to any whole number without changing its value.
- If necessary, work problems out to five decimal places, then round off to four places.

**Example 1**: convert \( \frac{1}{4} \) into a decimal

Step 1) write 4 outside the  )
Step 2) write 1 inside the  )
Step 3) add a decimal point and zeroes after the 1
Step 4) place a decimal point above itself in the answer space
Step 5) divide

**Example 2**: convert \( \frac{3}{16} \) to a decimal

Step 1) write 16 outside the  )
Step 2) write 3 inside the  )
Step 3) add the decimal point and zeroes after the 3
Step 4) place the decimal point in the answer space
Step 5) divide (add more zeroes as needed)
Repeating numbers must be rounded to 4 places

Example 3: convert \( \frac{2}{3} \) into a decimal

Step 1) write 3 outside the \( \frac{2}{3} \)   \( \frac{2}{3} \)
Step 2) write 2 inside the \( \frac{2}{3} \)
Step 3) add a decimal point and zeroes after the 2 \( \frac{2.00}{3} \)
Step 4) place a decimal point above itself in the answer space \( \frac{2.00}{3} \)
Step 5) divide (add more zeroes as needed) \( \frac{2.00}{3} \)

In this problem, the six repeats, so carry it out to 5 places and then round back to 4

\[ \frac{0.66666}{6} \]
six is more than half, so the answer is \( 0.6666 \) 20

Fractions containing 3rds, 6ths, 9ths and 12ths all repeat!

Sometimes you need a zero to hold a place value

Example 4: convert \( \frac{1}{16} \) into a decimal

\[ \frac{1}{16} \]

\[ \frac{1.00}{1} \]

\[ \frac{0.0625}{16} \]

Practice:

1) \( \frac{5}{16} = \) 
2) \( \frac{1}{8} = \) 
3) \( \frac{3}{4} = \) 
4) \( \frac{5}{8} = \) 
5) \( \frac{1}{3} = \) 
6) \( \frac{1}{12} = \) 
7) \( \frac{5}{6} = \) 
8) \( \frac{1}{6} = \) 
9) \( \frac{2}{5} = \) 
10) \( \frac{6}{25} = \) 
11) \( \frac{2}{9} = \) 
12) \( \frac{7}{10} = \)
DECIMAL REVIEW QUESTIONS

1) 1.95 x .02 = ______  
2) 2 - .36 = _______  
3) 7.005 + 3.98 = ______ 

4) 146.9 ÷ 1.13 = _____  
5) 2.094 + .24 + 5.6 = _____  
6) 1.56 ÷ .012 = ______ 

7) 400 x .07 = _______  
8) 42.419 – 9.2488 = ____  
9) 940.8 ÷ 64 = ______

10) 74.4 x .75 = _____  
11) 2.06 – 1.732 = _______ 
12) 16.28 + 9 + .0078 =_______

13) Convert .6875 to a fraction __________   
14) Convert \( \frac{3}{8} \) to a decimal __________ 

15) Convert .6667 to a fraction ___________  
16) Convert \( \frac{1}{3} \) to a decimal __________

17) Convert \( \frac{1}{6} \) to a decimal ___________  
18) Convert .4375 to a fraction __________

19) Which is larger: .007 or .07 ________  
20) Which is smallest 1.7, .17 or 11.7 _______

21) Which is largest 700, .700, 7.0 or .0700

22) Jessi drove 15.8 miles to work, 4.35 miles to Subway for lunch, then back to work and finally back home. How far did she drive?

23) Alicia worked 38 hours and got paid $665 cash. How much did she earn per hour?

24) An empty cardboard box weighed .139 pounds. Filled with nails it weighed 17.1 pounds. How much did the nails weigh?

25) Find the price of 8.6 gallons of gas at $3.75/gallon.

26) How many pounds of screws will it take to fill 32 boxes with .8 pounds of screws each?

27) Nancy carried tools weighing 6.2 pounds, .8 pounds, 15 pounds and 7.05 pounds. How much did all these weigh together?

28) Zoe paid $65.78 including $11.69 tax and shipping for a Carhart vest. How much did the vest itself cost?
29) An empty gas can weighs 1.5 pounds. Filled with 7.9 pounds of gas, how much does it weigh?

30) A 32 page pamphlet is .128 cm thick. How thick was each page?

31) Lori weighed 185.1 pounds. By dieting she lost 17.9 pounds. What is her new weight?

32) In one week Myra’s watch gained 19.6 seconds. How much did it gain per day?

33) One piece of rebar weighs 20.7 pounds. How much do 20 pieces weigh?

Extra Effort

34) What is the average of: 3.263 cm, 17.296 cm and 22.41 cm?

Betsy sold 25 tickets to people for $2.25 per ticket. Freeda sold 15 tickets. She brought in a total of $11.00.

35) How much did they collect together?

36) How much would Betsy’s ticket buyers have saved at Freeda’s prices?

37) \[.24 + 2.094 + \frac{5}{6} = \]

38) \[300 \div \frac{2}{5} \times .2 = \]
Decimals Packet Answer Key

Page 1
1)  6.9  2) 10.8  3) 15.15  4) 27.005  5) 1.03  6) 150.0019

Page 3
1) .83  2) 6.72  3) 9.91  4) 85.0298  5) .35  6) 16.961
7) 20  8) 13.1  9) 6.405  10) 26.74  11) 8.191  12) 73.2308
13) 7.437 14) 4.78  15) 78.711 16) .995  17) 1.296  18) 68.83
19) 1.094 20) 82.536 21) 113.58 22) 14.27  23) 4.264  24) 25.555
25) 22.1089 26) 8.365  27) .079  28) 209.7  29) 16  30) 10.1

Page 4
1) 45.04 lbs  2) 63.8 miles  3) $2.18  4) 99 degrees  5) $41.19  6) 24.15 lbs
7) 3066.5 lbs  8) 8.25 inches  9) 73.09 lbs

Pages 5 & 6
1) 1.8  2) 1.75  3) .279  4) 33.75  5) .846  6) 40.24
7) 9.254  8) 20.88  9) 39.06  10) 141.5414  11) .23408  12) .3136
13) .064  14) .083394  15) .03318  16) .0705  17) .04356  18) .0555
19) .06321 20) .0918  21) .1384 22) .06084  23) .0222  24) .0035056
25) .309  26) 216  27) 1.17  28) .319  29) 1932  30) .75
31) .1022 32) .003  33) 5.04  34) 642  35) 11.7  36) .1053

Page 8
1) .118  2) 4.15  3) 8.25  4) .35  5) .15  6) 1.38
7) .225  8) .16  9) 2.3  10) 49.6  11) 2.33  12) 1.458
13) .3  14) .07  15) 13.7444 16) .9  17) 12.5  18) 3.125
19) .5  20) .375  21) 145.8  22) 4.75  23) .53  24) .4375
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37) .7778  38) .6667  39) .4167  40) .8333  41) .3333  42) .2403
43) 339.5722  44) 5.5556  45) .7556

Pages 13-14
1) .15  2) .09  3) .6  4) .9090  5) .213  6) .02
7) .1 .6 .8 .9  8) .05 .15 .5 .51  9) .06 .306 .6 .62  10) .012 .02 .2 .21
11) .7 .79 .791 .97  12) .3051 .310 .3105 .35  13) .14 .41 4.1 .41
14) 8.001 8.01 8.101 8.8  15) .3715 .715 .73 3.7  16) .9063 .9603 .9603 96.3

Page 15
1) \( \frac{1}{10} \)  2) \( \frac{7}{10} \)  3) \( \frac{13}{100} \)  4) \( \frac{1}{200} \)  5) \( \frac{19}{25} \)  6) \( \frac{3}{400} \)
7) 347 \( \frac{4}{5} \)  8) 6 \( \frac{7}{8} \)  9) \( \frac{3}{8} \)  10) \( \frac{9}{16} \)  11) 6 \( \frac{3}{1000} \)  12) \( \frac{3}{4} \)
13) \( \frac{99}{100} \)  14) \( \frac{17}{20} \)  15) \( \frac{3}{16} \)  16) 6 \( \frac{389}{1000} \)

Page 17
1) .3125  2) .125  3) .75  4) .625  5) .3333  6) .0833
7) .8333  8) .1667  9) .4  10) .24  11) .2222  12) .7

Page 18 & 19
1) .039  2) 1.64  3) 10.985  4) 130  5) 7.934  6) 130
7) 28  8) 33.1702  9) 14.7  10) 55.8  11) .328  12) 25.2878
13) \( \frac{11}{16} \)  14) .375  15) \( \frac{2}{3} \)  16) .3333  17) .1667  18) \( \frac{7}{16} \)
19) .07  20) .17  21) 700  22) 40.3 mi  23) $17.50  24) 16.961 lbs.
25) $32.25  26) 25.6 pounds  27) 29.05 pounds  28) $54.09  29) 9.4 pounds
30) .004 cm  31) 167.2 pounds  32) 2.8 seconds  33) 414 pounds
34) 14.323 cm  35) $67.25  36) $1.51 or $1.52  37) 3.1673  38) 150

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