

# Writing Decimals

Place value is reflected when writing and reading decimal numbers in words. In writing the decimal is represented by the word "and."

**Example:**

4.7 is written "four **and** seven tenths."

70.024 is written "seventy **and** twenty-four thousandths."

**Write the following in words as you would write the number. (Use the chart at the end of the booklet to aid with number placement.)**

1) 20.15

6) 4.05

2) 45.21

7) 278.54

3) 15.196

8) 7.0007

4) 2,049.009

9) 1.1

5) 0.005

10) 1928.07

## Translating Numerical Expressions

To translate written numerical expressions, place the last written number in the correct place value.

**Example:**

Twenty and ninety-  
**six** thousandths

20.09**6**

20.**0**96

Six, (6) the last digit belongs in the thousandths place.  
(Third place to the right from the decimal point.)

Zero must be entered in the tenths place.

**Write the following using digits. (Use a chart if needed)**

- 1) four and five tenths
- 2) fourteen hundredths
- 3) one thousand nine hundred seventy-two ten thousandths
- 4) four hundred seven and three hundred twenty-eight thousandths
- 5) one tenth
- 6) seven and nine hundredths
- 7) one hundred seventy-two ten-thousandths
- 8) twenty-two and five tenths
- 9) twenty and four hundred ninety-six thousandths
- 10) three hundred and three hundredths

## Decimal Fractions

A decimal number is another way to write a fraction with a denominator of a multiple of ten, (i.e., denominators equal to 10; 100; 1,000; 10,000; etc.) To convert a fraction with a denominator of a multiple of ten to a decimal, read the fraction and write as a decimal number.

<p><b>Example:</b></p> $3\frac{7}{10}$ $3.7$	<p>is read " three and seven tenths"</p> <p>expressed with digits</p>
<p><b>Example:</b></p> $15\frac{234}{1000}$ $15.234$	<p>is read " fifteen and two hundred thirty-four thousandths"</p> <p>expressed with digits</p>
<p><b>Example:</b></p> $\frac{5}{100}$ $0.05$	<p>is read " five hundredths"</p> <p>expressed with digits. Note the zero placement.</p>

**Write as a decimal number.**

1)  $72\frac{19}{100}$

4)  $1276\frac{3}{10}$

2)  $301\frac{7}{1000}$

5)  $1\frac{6}{100}$

3)  $\frac{17}{100}$

6)  $\frac{24}{1000}$

## Comparing Decimals

To compare decimals, write the decimal numbers with the same number of decimal places and decide which is larger.

**Example:**

Which is greater:  
0.9 or 0.91?

0.90 ? 0.91

**Example:**

Write the following from  
smallest to largest:

0.78006, 0.7845,  
0.7851, 0.785, 0.78

0.78006, 0.78450,  
0.78510, 0.78500,  
0.78000

0.78000, 0.78006,  
0.78450, 0.78500,  
0.78510

To compare write both numbers with two decimal places. Note zeros may be added or deleted from the right and after the decimal point.

Compare digits in hundredths place. 1 is greater than 0; therefore, 0.91 is greater. (hint: Consider money)

Write the list adding zeros to hundred thousandths place as needed.

Since the digits in the tenths and hundredths places are the same, compare the digits in the thousandths place first. Then compare the digits in the remaining places.

Re-write the list from smallest to largest.

**Write from smallest to largest:**

1) 12.34, 1.234, 0.1234

5) 0.935, 1.2, 0.6, 0.56

2) 0.1, 0.01, 1.001

6) 0.12, 0.16, 0.2, 0.48, 0.054

3) 3.1, 0.031, 0.331

7) 5.038, 5.0382, 50.382, 0.5382

4) 0.06, 0.4, 0.9

8) 0.08, 8.08, 8.808, 8.888, 0.088, 0.8

# Rounding

To round numbers for estimation:

1. Identify the place value to be rounded. All digits to the left of that place remain the same.
2. Check the number to the **immediate right** of the place to be rounded:
  - a. If the digit in that place is **5 or greater**, **add one** to the digit in the place to be rounded.
  - OR**
  - b. If the digit in that place is **4 or less**, **do not change** the digit in the place to be rounded.
3. Fill in the remaining place values to the right of the place to be rounded with zeros, or drop the digits after the decimal point.

**Example:**

Round 1792 to the **hundreds** place.

18 \_ \_

18 0 0

Identify the place value to be rounded, (7 hundred). Write the digit(s) to the left (1). Identify the number to the right (9).  
9 is greater than 5; add one to 7, (7+1=8), enter 8 in the hundreds place.  
Fill in all the places to the right with zeros.

**Example:**

Round 73.64 to the **tenths** place.

73.6 \_

73.60 = 73.6

Identify the place value to be rounded, (6 tenths). Write the digits to the left (73). Identify the number to the right (4).

4 is less than 5, 6 remains in the tenths place.

It is not need to fill in all the places to the right with zeros; rounding to tenths place.

**Example:**

Round 49.897 to the **hundredths** place.

49. 8 <sup>1</sup>0 \_

49.(8+1) 0 \_

49.90

Identify the place value to be rounded, (9 hundredths). Write the digits to the left (49.8). Identify the number to the right, (7).

7 is greater than 5, add one to 9. Since  $9 + 1 = 10$ , a zero is entered in the hundredths place, and the 1 is carried to the tenths place.

The 1 is added to 8.

The zero is needed to represent the hundredths place.

**Round these numbers as indicated.**

- |                    |         |                     |         |
|--------------------|---------|---------------------|---------|
| 1) Tenths          | 62.87   | 9) Units            | 33.97   |
| 2) Units           | 14.45   | 10) Hundredths      | 49.995  |
| 3) Ten thousandths | 3.56906 | 11) Thousandths     | 5.0074  |
| 4) Tenths          | 3.1416  | 12) Thousandths     | 0.6739  |
| 5) Hundreds        | 459.326 | 13) Tenths          | 1.98    |
| 6) Tenths          | 19.77   | 14) Ten thousandths | 0.01704 |
| 7) Thousandths     | 0.0067  | 15) Hundredths      | 0.01011 |
| 8) Tens            | 389.88  | 16) Thousandths     | 0.0007  |

# Addition

To add decimals, write the numbers vertically with the decimal points directly under each other, then add the digits.

Note: When the decimal points are lined up, the digits are automatically lined up in the correct place value.

**Example:**

$$13.2 + 1.57$$

$$\begin{array}{r} 13.20 \\ + 1.57 \\ \hline 14.77 \end{array}$$

**Example:**

$$\$437 + \$41.56 + \$0.18$$

$$\begin{array}{r} \$437.00 \\ 41.56 \\ + 0.18 \\ \hline \$478.74 \end{array}$$

Write the problem vertically. Line up the decimal points.

Note the additional zero. Adding zeros to the right of the final digit after the decimal does not change the value of the number.

Dollar values are the most familiar decimal values.

Write the problem vertically. Line up the decimal points.

The additional zeros are optional, but help with placement. Note dollar sign use.

**Find the Sum (Add):**

1)  $0.03 + 0.4$

6)  $48 + 0.84$

2)  $0.3 + 0.03 + 0.003$

7)  $10 + 9.6 + 3.76 + 8.451$

3)  $2.05 + 0.561 + 43.9 + 17.32$

8)  $\$3.06 + \$2.13 + \$4.89$

4)  $\$4 + \$14.01$

9)  $2,134.07 + 306.5 + 2.109$

5)  $8.0632 + 0.234 + 0.81 + 0.064$

10)  $56.3701 + 0.268 + 4.2$

# Subtraction

To subtract decimals, write the numbers vertically with decimal points directly under each other, and add zeros when needed, then subtract the digits.

Note: When the decimal points are lined up, the digits are automatically lined up in the correct place value.

**Example:**

$$\underline{42.63} - 18.275$$

$$\begin{array}{r} 42.630 \\ - 18.275 \\ \hline 24.355 \end{array}$$

Write the problem vertically. Line up the decimals.

Remember: always write the first number on the top. Add zeros to the number with fewer places to the right of the decimal point. Subtract.

**Example:**

$$\$23 - \$0.13$$

$$\begin{array}{r} \$23.00 \\ - \quad 0.13 \\ \hline \$22.87 \end{array}$$

Write the problem vertically. Line up the decimals.

Insert the decimal point and two zeros.

Subtract; borrow if necessary.

**Find the Difference (Subtract):**

1)  $8.4 - 7.35$

5)  $4.355 - 1.647$

2)  $12.5 - 8.7$

6)  $60.54 - 0.928$

3)  $\$17.50 - \$6.25$

7)  $89. - 58.46$

4)  $\$18 - \$5.63$

8)  $104.003 - 21.78$

**Find the Sum and Difference as indicated, (in the order indicated):**

9)  $14.6 - 1.98 + 3.7$

11)  $0.19 + 2.34 - 1.003$

10)  $5.67 + 0.34 - 2.05$

12)  $\$21.90 - \$0.45 - \$ 2.34$



# Multiplication

To multiply decimals, write the problem and multiply as you would a whole number multiplication problem. The product (answer) of two decimal numbers has the same number of decimal places after the decimal point as the total number of decimal places in the two numbers being multiplied.

**Example:**

$$0.19 \times 0.4$$

$$\begin{array}{r} 0.19 \\ \times 0.4 \\ \hline 0.076 \end{array}$$

**Example:**

$$\begin{array}{r} 708 \\ \times 0.32 \\ \hline 1416 \\ 21240 \\ \hline 226.56 \end{array}$$

Write vertically. (The decimal points do not have to line up.)

2 decimal places (Decimal points not lined up.)

+ 1 decimal place

3 decimal places

Count from right to left; add a zero before the decimal point.

0 decimal places (Decimal points not lined up.)

+ 2 decimal places

2 decimal places

Count from right to left to place decimal point.

**Find the Product (multiply):**

1) 
$$\begin{array}{r} 0.32 \\ \times 0.6 \\ \hline \end{array}$$

4) 
$$\begin{array}{r} 5.048 \\ \times 2.03 \\ \hline \end{array}$$

7) 
$$\begin{array}{r} 0.075 \\ \times 5.4 \\ \hline \end{array}$$

2) 
$$\begin{array}{r} 1.9 \\ \times 0.05 \\ \hline \end{array}$$

5) 
$$\begin{array}{r} 0.15 \\ \times 0.15 \\ \hline \end{array}$$

8) 
$$\begin{array}{r} 99 \\ \times 1.1 \\ \hline \end{array}$$

3) 
$$\begin{array}{r} 400 \\ \times 0.17 \\ \hline \end{array}$$

6) 
$$\begin{array}{r} 2.4 \\ \times .013 \\ \hline \end{array}$$

9) 
$$\begin{array}{r} 2.029 \\ \times 10.8 \\ \hline \end{array}$$



## Division by Multiples of 10

To divide by a multiple of ten, (10; 100; 1,000; etc.), move the decimal point to the **LEFT** as many places as there are zeros in the divisor.

**Example:**

$$\begin{array}{r} 78.2 \\ \hline \end{array} \div 10 = 7.82$$

There is **one zero** in the divisor (10), therefore the decimal point moves **left one place**.

**Example:**

$$\begin{array}{r} 0.32 \\ \hline \end{array} \div 1000 = 0.00032$$

There are **three zeros** in the divisor (1000), therefore the decimal point moves **left three places**. Note the additional zeros.

**Divide:**

1)  $82.5 \div 100 =$

6)  $78.567 \div 10 =$

2)  $923.8 \div 1000 =$

7)  $54.87 \div 1000 =$

3)  $0.754 \div 10 =$

8)  $20.35 \div 10 =$

4)  $0.845 \div 100 =$

9)  $540.8 \div 100 =$

5)  $63.8 \div 100 =$

10)  $6200 \div 10,000 =$

## Division by Whole Numbers

To divide a decimal by a whole number, place the decimal point in the quotient directly above the decimal point in the dividend to ensure the correct place value. Divide as with whole numbers.

**Example:**

$$5.5 \div 5 = 5 \overline{)5.5}$$

$$\begin{array}{r} 1.1 \\ 5 \overline{)5.5} \\ \underline{5} \phantom{.5} \\ 5 \phantom{.5} \\ \underline{5} \\ 0 \end{array}$$

Write the problem with a "division house," placing the quotient's (answer's) decimal point directly over the decimal point of the dividend.

**Example:**

$$\frac{22.5}{3} = 3 \overline{)22.5}$$

$$\begin{array}{r} 7.5 \\ 3 \overline{)22.5} \\ \underline{21} \phantom{.5} \\ 15 \phantom{.5} \\ \underline{15} \\ 0 \end{array}$$

A fraction is another way to express a division problem. The divisor is the denominator and the dividend is the numerator.

Write the problem with a "division house," placing the quotient's (answer's) decimal point directly over the decimal point of the dividend.

**Divide:**

1)  $1.8 \div 6 =$

4)  $0.264 \div 4 =$

7)  $0.32 \div 5 =$

2)  $\frac{0.84}{4}$

5)  $\frac{3.96}{9}$

8)  $\frac{34.5}{5}$

3)  $\frac{0.096}{8}$

6)  $0.016 \div 2 =$

9)  $\frac{1.49}{2}$

## Division by Decimals

In division, the divisor must be a whole number. To convert a decimal divisor to a whole number, multiply the divisor and the dividend by a multiple of ten. Then divide as usual.

**Example:**

$$4.9 \div 0.7$$

$$(4.9 \times 10) \div (0.7 \times 10)$$

$$49 \div 7 = 7$$

The divisor (0.7) has **one decimal place**. To change the divisor to a whole number, **multiply the divisor and the dividend by 10**.  
Divide as usual.

**Example:**

$$\frac{8.505}{0.05} \times \frac{100}{100} = \frac{850.5}{5}$$

$$\begin{array}{r} 170.1 \\ 5 \overline{)850.5} \\ \underline{5} \phantom{00} \\ 35 \phantom{0} \\ \underline{35} \phantom{0} \\ 005 \\ \underline{\phantom{00}5} \\ 0 \end{array}$$

The divisor (0.05) has **two decimal places**. To change the divisor to a whole number, **multiply the divisor and the dividend by 100**.

Divide as usual. Place the decimal point for the quotient (170.1) directly above the decimal point in the dividend (850.5)

**Divide:**

1)  $574.0 \div 0.7$

4)  $35.1 \div 2.7$

7)  $82.8 \div 0.03$

2)  $0.4 \overline{)6.988}$

5)  $2.4 \overline{)77.04}$

8)  $0.41 \overline{)205}$

3)  $\frac{0.0144}{1.2}$

6)  $\frac{0.132}{0.011}$

9)  $\frac{0.6832}{0.004}$

## Converting Fractions to Terminating Decimals

To convert a fraction to a decimal, divide. Some fractions will convert to a decimal representation with a remainder of zero, called a terminating decimal.

**Example:**

Convert to a Decimal

$$\frac{3}{12} = 12 \overline{) 3.00}$$

$$\underline{24}$$

$$60$$

$$\underline{60}$$

$$0$$

$$\frac{3}{12} = 0.25$$

Divide 3 by 12.

The decimal equivalent to three twelfths is twenty-five hundredths.

**Example:**

Convert to a Decimal

$$11\frac{5}{25} = 11 + 25 \overline{) 5.00}$$

$$\underline{50}$$

$$0$$

$$11\frac{5}{25} = 11.20$$

The whole number portion of the number will remain the same. The fraction will convert to a decimal.

Divide 5 by 25.

The decimal equivalent to eleven and five twenty-fifths is eleven and two tenths.

**Convert to a Decimal:**

1)  $\frac{9}{18}$

6)  $\frac{19}{40}$

2)  $\frac{15}{30}$

7)  $\frac{48}{32}$

3)  $\frac{6}{16}$

8)  $5\frac{2}{20}$

4)  $\frac{9}{20}$

9)  $77\frac{7}{40}$

5)  $\frac{13}{50}$

10)  $47\frac{37}{50}$

# Converting to Repeating Decimals

To convert a fraction to a decimal, divide. Some fractions will convert to a decimal representation with pattern, called a repeating decimal.

**Example:**

$$\frac{2}{3} = 3 \overline{) 2.000...}$$

$$\begin{array}{r} 0.666... \\ 3 \overline{) 2.000...} \\ \underline{18} \phantom{00} \\ 20 \\ \underline{20} \\ 0 \end{array}$$

$0.666... = 0.\overline{6}$

Divide two by three. Note that the remainder will continue to be two; therefore, the decimal answer is a repeating decimal.

Repeating decimals are written with a bar over the repeating digits in the pattern.

**Example:**

$$\frac{34}{11} = 11 \overline{) 34.0000...}$$

$$\begin{array}{r} 3.0909... \\ 11 \overline{) 34.0000...} \\ \underline{33} \phantom{0000} \\ 100 \\ \underline{99} \phantom{00} \\ 100 \\ \underline{99} \\ 1 \end{array}$$

$3.0909... = 3.\overline{09}$

Divide 34 by 11. Since 11 does not divide 10, there is a need to bring down an additional zero. Note that there is a portion of the quotient that does not repeat.

The bar indicates that only the 09 repeats.

**Convert:**

1)  $\frac{1}{11}$

6)  $1\frac{1}{3}$

2)  $\frac{1}{33}$

7)  $8\frac{1}{6}$

3)  $\frac{4}{9}$

8)  $\frac{7}{33}$

4)  $\frac{1}{3}$

9)  $\frac{7}{42}$

5)  $\frac{3}{22}$

10)  $4\frac{2}{3}$

## Converting Decimals to Fractions

To convert a terminating decimal to a fraction, write the decimal with the place value multiple of ten as a denominator and reduce to simplest terms.

**Example:**

$$3.2 = 3\frac{2}{10}$$

The decimal fraction portion of the number terminates in the tenths place; therefore the denominator will be 10.

$$3\frac{2}{10} = 3\frac{1}{5}$$

This fraction is not in lowest terms, therefore must be reduced. Divide numerator and denominator by 2.

To convert a repeating decimal to a fraction, use a value of 9 as the denominator.

**Example:**

$$3.\overline{09} = 3\frac{9}{99}$$

The repeating pattern ends in the hundredths place, therefore the denominator will have two nines, or be 99.

$$3\frac{9}{99} = 3\frac{1}{11}$$

This fraction is not in lowest terms, therefore must be reduced. Divide numerator and denominator by 9

**Convert:**

1) 7.85

6)  $34.\overline{0102}$

2)  $10.\overline{3}$

7)  $7.\overline{7}$

3) 2.08

8) 10.425

4)  $0.\overline{45}$

9) 0.006

5) 0.360

10)  $2.\overline{360}$



## Word Problems

To solve a word problem, read the problem and express what you are trying to learn in your own words. Identify the operation to be used, (addition, subtraction, multiplication, or division). Translate the problem from words to math symbols, (i.e. write an equation). Solve the equation.

**Example:**

Carlos bought one pair of shoes for \$19.95, two neckties for \$3.95 each, three pairs of socks for \$1.25 a pair, and one suit for \$89.95. What was the total cost?

Trying to learn total cost of the items.

$$\begin{array}{r}
 \$ 19.95 \\
 7.90 \\
 3.75 \\
 + 89.95 \\
 \hline
 \$121.55
 \end{array}$$

Total cost usually implies addition.

One pair of shoes  
 $3.95 \times 2$  Two neckties  
 $1.25 \times 3$  Three pair of socks  
 One suit  
 Add with decimal points lined up.

**Example:**

Nora made 18 equal monthly payments on her new stereo set. If the total cost of the set was \$355.00, what was her monthly payment? (Round off to the nearest cent.)

Trying to learn Nora's monthly payment.

$$\begin{array}{r}
 \$355.00 \div 18 \\
 \underline{19.72} \\
 18 \overline{)355.00} \\
 \underline{18} \\
 175 \\
 \underline{162} \\
 130 \\
 \underline{126} \\
 40 \\
 \underline{36} \\
 4
 \end{array}$$

The monthly payment is \$19.72.

Total and number of months are given. Division is implied

Total divided by number of months gives each month's payment. The answer must be to the nearest cent; that is rounded to the hundredths place.

Divisor is a whole number.

To continue the division, another zero may be added. However, the next digit in the quotient will be a 2 and by the rules of rounding, will not effect the current quotient.



- 5) A garden is 33.75 feet long and 21.6 feet wide. Draw a diagram of the garden with the lengths written on all four sides. What is the total distance around the garden?
- 6) A car traveled at 50 miles an hour for 2.5 hours. How far did it go?
- 7) A can of ham weighing 7.75 pounds costs \$ 11.86. What does the ham cost per pound? (Round to the nearest cent.)
- 8) A park is 4.6 miles long and 2.7 miles wide.  
a. What is the total distance around the park?  
b. If a racecar drove 50 times around the park, how far will it have to go?

# Answers to Exercises

<b>Page 8</b>	<b>Page 9</b>	<b>Page 13</b>
1. Twenty and fifteen hundredths	1. 4.5	1. 62.9
2. Forty-five and twenty-one hundredths	2. 0.14	2. 14
3. Fifteen and one hundred ninety-six thousandths	3. 0.1972	3. 3.5691
4. Two thousand, forty-nine and nine thousandths	4. 407.328	4. 3.1
5. Eight thousandths	5. 0.1	5. 500
6. Four and five hundredths	6. 7.09	6. 19.8
7. Two hundred seventy-eight and fifty-four hundredths	7. 0.0172	7. 0.007
8. Seven and seven ten-thousandths	8. 22.5	8. 390
9. One and one tenth	9. 20.496	9. 34
10. One thousand nine hundred twenty-eight and seven hundredths	10. 300.03	10. 50.00
	<b>Page 10</b>	11. 5.007
	1. 72.19	12. 0.674
	2. 301.007	13. 2.0
	3. 0.17	14. 0.0170
	4. 1276.3	15. 0.01
	5. 1.06	16. 0.001
	6. 0.024	
	<b>Page 11</b>	<b>Page 14</b>
	1. 0.1234, 1.234, 12.34	1. 0.43
	2. 0.01, 0.1, 1.001	2. 0.333
	3. 0.031, 0.331, 3.1	3. 63.831
	4. 0.06, 0.4, 0.9	4. \$18.01
	5. 0.56, 0.6, 0.935, 1.2	5. 9.1712
	6. 0.054, 0.12, 0.16, 0.2, 0.48	6. 48.84
	7. 0.5382, 5.038, 5.0382, 50.382	7. 31.811
	8. 0.08, 0.088, 0.8, 8.08, 8.808, 8.888	8. \$10.08
		9. 2442.679
		10. 60.8381

- Page 15**
1. 1.05
  2. 3.8
  3. \$11.25
  4. \$12.37
  5. 2.708
  6. 59.612
  7. 30.54
  8. 82.223
  9. 16.32
  10. 3.96
  11. 1.527
  12. \$19.11

- Page 16**
1. 0.192
  2. 0.095
  3. 68.00
  4. 10.24744
  5. 0.0225
  6. 0.0312
  7. 0.4050
  8. 108.9
  9. 21.9132

- Page 17**
1. 48.3
  2. 83,500
  3. 9,020
  4. 103.7
  5. 760
  6. 0.8
  7. 3,596.1
  8. 82,600
  9. 700.7
  10. 729.53
  11. 987
  12. 4,760,980

- Page 18**
1. 0.825
  2. 0.9238
  3. 0.0754
  4. 0.00845
  5. 0.638
  6. 7.8567
  7. 0.05487
  8. 2.035
  9. 5.408
  10. 0.6200

- Page 19**
1. 0.3
  2. 0.21
  3. 0.012
  4. 0.066
  5. 0.44
  6. 0.008
  7. 0.064
  8. 6.9
  9. 0.745

- Page 20**
1. 820
  2. 17.47
  3. 0.012
  4. 13
  5. 32.1
  6. 12
  7. 2,760
  8. 500
  9. 170.8

- Page 21**
1. 0.5
  2. 0.5
  3. 0.375
  4. 0.45
  5. 0.26
  6. 0.475
  7. 1.5
  8. 5.1
  9. 77.175
  10. 47.74

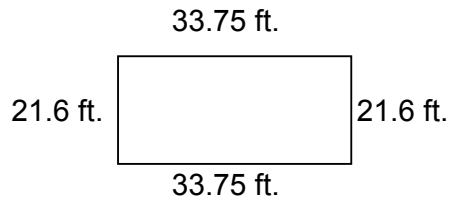
- Page 22**
1.  $0.\overline{09}$
  2.  $0.\overline{03}$
  3.  $0.\overline{4}$
  4.  $0.\overline{3}$
  5.  $0.\overline{136}$
  6.  $1.\overline{3}$
  7.  $0.\overline{16}$
  8.  $0.\overline{21}$
  9.  $0.\overline{16}$
  10.  $4.\overline{6}$

**Page 23**

1.  $7\frac{17}{20}$
2.  $10\frac{1}{3}$
3.  $2\frac{2}{25}$
4.  $\frac{5}{11}$
5.  $\frac{9}{25}$
6.  $34\frac{34}{3333}$
7.  $7\frac{7}{9}$
8.  $10\frac{17}{40}$
9.  $\frac{3}{500}$
10.  $2\frac{40}{111}$

**Page 25-26**

1. \$14.64
2. \$53,700
3. \$574.73
4. \$0.07 per mile
5. 110.7 feet



6. 125 miles
7. \$1.53 per pound
8. a. 14.6 miles  
b. 730.0 miles