

Exploring Thousandths



Quick Review

- ▶ Numbers with tenths, hundredths, and thousandths can be written as decimals.

$$\frac{3}{10} \quad 0.3$$

three tenths

$$1\frac{7}{100} \quad 1.07$$

one and seven hundredths

$$\frac{213}{1000} \quad 0.213$$

two hundred thirteen thousandths

- ▶ You can use a place-value chart to show decimals.

Tens	Ones	Tenths	Hundredths	Thousandths
	4	6	2	3

- ▶ You can write decimals in expanded form.

$$\begin{aligned} 4.623 &= 4 \text{ ones} + 6 \text{ tenths} + 2 \text{ hundredths} + 3 \text{ thousandths} \\ &= 4 + 0.6 + 0.02 + 0.003 \end{aligned}$$

Try These

1. Write each number as a decimal.

a) $\frac{7}{100}$ 0.07 b) $2\frac{14}{1000}$ 2.014 c) $32\frac{19}{100}$ 32.19

d) $5\frac{6}{1000}$ 5.006 e) $216\frac{374}{1000}$ 216.374 f) $\frac{108}{1000}$ 0.108

2. Write each decimal in expanded form.

a) 0.405 0.4 + 0.005 b) 84.007 80 + 4 + 0.007

3. Write each number in words.

a) 0.234 two hundred thirty-four thousandths

b) 17.637 seventeen and six hundred thirty-seven thousandths

Practice

1. Record each number in the place-value chart.

a) 76 thousandths

b) 316 and 536 thousandths

c) 185 thousandths

d) 93 and 3 thousandths

	Hundreds	Tens	Ones	•	Tenths	Hundredths	Thousandths
a)			0	•	0	7	6
b)	3	1	6	•	5	3	6
c)			0	•	1	8	5
d)		9	3	•	0	0	3

2. Write each number as a fraction or a mixed number.

a) 3.047 $3\frac{47}{1000}$ b) 62.354 $62\frac{354}{1000}$ c) 0.739 $\frac{739}{1000}$

d) 0.001 $\frac{1}{1000}$ e) 2.72 $2\frac{72}{100}$ f) 1.506 $1\frac{506}{1000}$

3. Write each number in question 2 in expanded form.

a) $3 + 0.04 + 0.007$ b) $60 + 2 + 0.3 + 0.05 + 0.004$

c) $0.7 + 0.03 + 0.009$ d) 0.001

e) $2 + 0.7 + 0.02$ f) $1 + 0.5 + 0.006$

4. Write each number as a decimal.

a) $2\frac{9}{1000}$ 2.009 b) $17\frac{6}{100}$ 17.06 c) $\frac{85}{1000}$ 0.085

d) $5\frac{25}{1000}$ 5.025 e) $\frac{367}{1000}$ 0.367 f) $\frac{8}{1000}$ 0.008

Stretch Your Thinking

Use the digits 0, 2, 3, and 6.

Make a number that is greater than 1 but less than 4.

Find as many numbers as you can.

2.036, 2.063, 2.306, 2.360, 2.603, 2.630,

3.026, 3.062, 3.206, 3.260, 3.602, 3.620

Comparing and Ordering Decimals



Quick Review

The table shows the masses of Henry's 3 kittens.

Kitten	Mass (kg)
Foofoo	0.395
Quigley	0.364
Oscar	0.391

Here are 2 ways to order the pets from least to greatest mass.

➤ Use a place-value chart.

Ones	Tenths	Hundredths	Thousandths
0	3	9	5
0	3	6	4
0	3	9	1

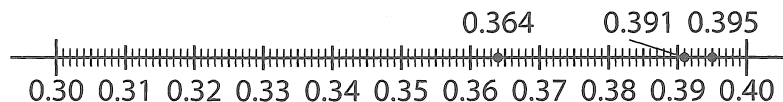
All 3 numbers have 0 ones and 3 tenths.

0.364 has the least hundredths, so it is the least number.

0.395 has the greatest number of thousandths, so it is the greatest.

The pets in order from least to greatest mass are: Quigley, Oscar, Foofoo.

➤ Use a number line.



Reading numbers from left to right gives the masses from least to greatest.

Try These

1. Use $>$, $<$, or $=$ to make each statement true.

a) $0.457 > 0.406$ b) $17.63 = 17.630$ c) $5.976 < 6.0$

2. Order the numbers from greatest to least.

a) $0.36, 0.371, 0.329$ $0.371, 0.36, 0.329$ b) $2.76, 5.3, 2.485$ $5.3, 2.76, 2.485$

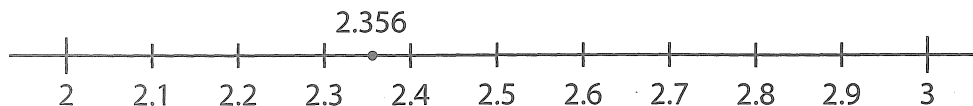
Rounding Decimals



Quick Review

You can use a number line to round decimals.

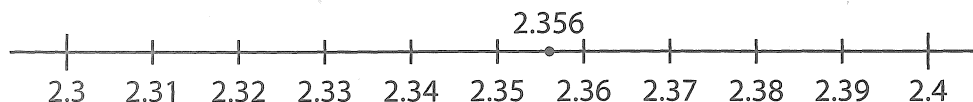
- Round 2.356 to the nearest whole number.



2.356 is between 2 and 3, but closer to 2.

So, 2.356 rounded to the nearest whole number is 2.

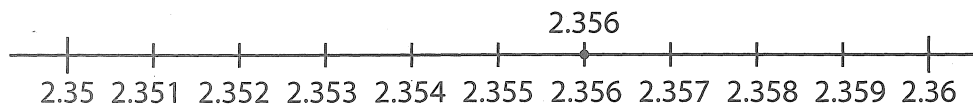
- Round 2.356 to the nearest tenth.



2.356 is between 2.3 and 2.4, but closer to 2.4.

So, 2.356 rounded to the nearest tenth is 2.4.

- Round 2.356 to the nearest hundredth.



2.356 is between 2.35 and 2.36, but closer to 2.36.

So, 2.356 rounded to the nearest hundredth is 2.36.

Try These

1. Round to the nearest whole number.

a) 3.06 3 b) 7.7 8 c) 14.135 14 d) 0.973 1

2. Round to the nearest tenth.

a) 2.25 2.3 b) 5.862 5.9 c) 3.789 3.8 d) 1.173 1.2

3. Round to the nearest hundredth.

a) 0.738 0.74 b) 4.159 4.16 c) 2.235 2.24 d) 9.141 9.14

Estimating Sums and Differences



Quick Review

Here are 3 ways to estimate $4.548 + 2.417$.

- Round each decimal to the nearest whole number:

$$5 + 2 = 7$$

- Round only 1 decimal to the nearest whole number:

$$5 + 2.417 = 7.417$$

- Round each decimal to the nearest tenth or hundredth:

$$4.5 + 2.4 = 6.9$$

$$4.55 + 2.42 = 6.97$$

Here are 2 ways to estimate $4.538 - 2.417$.

- Round the second decimal to the nearest whole number:

$$4.538 - 2 = 2.538$$

- Round both decimals to the nearest tenth or hundredth:

$$4.5 - 2.4 = 2.1$$

$$4.54 - 2.42 = 2.12$$

Try These

1. Estimate each sum. **Sample Answers**

a) $2.54 + 7.16$

$$\underline{\quad 10 \quad}$$

b) $4.197 + 3.864$

$$\underline{\quad 8 \quad}$$

c) $0.765 + 1.295$

$$\underline{\quad 2 \quad}$$

d) $5.765 + 3.189$

$$\underline{\quad 8.765 \quad}$$

e) $0.473 + 1.697$

$$\underline{\quad 2 \quad}$$

f) $2.008 + 3.801$

$$\underline{\quad 5.801 \quad}$$

2. Estimate each difference. **Sample Answers**

a) $7.546 - 3.518$

$$\underline{\quad 4 \quad}$$

b) $2.476 - 1.555$

$$\underline{\quad 0.9 \quad}$$

c) $7.9 - 3.267$

$$\underline{\quad 4.6 \quad}$$

d) $3.204 - 0.938$

$$\underline{\quad 2.3 \quad}$$

e) $1.497 - 0.126$

$$\underline{\quad 1.37 \quad}$$

f) $12.094 - 8.259$

$$\underline{\quad 3.83 \quad}$$

Adding and Subtracting Decimals



Quick Review

- You can use place value to add 5.763 and 3.949.

Step 1: Estimate.

Round 3.949 to 4.

$$\text{Add: } 5.763 + 4 = 9.763$$

9.712 is close to the estimate, so the answer is reasonable.

Step 2: Add as you would with whole numbers.

$$\begin{array}{r} 111 \\ 5.763 \\ + 3.949 \\ \hline 9.712 \end{array}$$

- You can use place value to subtract 3.949 from 5.763.

Step 1: Estimate.

Round 3.949 to 4.

$$\text{Subtract } 5.763 - 4 = 1.763$$

1.814 is close to the estimate, so the answer is reasonable.

Step 2: Subtract as you would with whole numbers.

$$\begin{array}{r} 417513 \\ 5.7\cancel{6}3 \\ - 3.949 \\ \hline 1.814 \end{array}$$

Try These

1. Add.

$$\begin{array}{r} \text{a) } 4.521 \\ + 3.097 \\ \hline 7.618 \end{array}$$

$$\begin{array}{r} \text{b) } 2.168 \\ + 0.948 \\ \hline 3.116 \end{array}$$

$$\begin{array}{r} \text{c) } 7.169 \\ + 8.473 \\ \hline 15.642 \end{array}$$

$$\begin{array}{r} \text{d) } 6.704 \\ + 0.491 \\ \hline 7.195 \end{array}$$

2. Subtract.

$$\begin{array}{r} \text{a) } 9.732 \\ - 0.489 \\ \hline 9.243 \end{array}$$

$$\begin{array}{r} \text{b) } 6.371 \\ - 1.098 \\ \hline 5.273 \end{array}$$

$$\begin{array}{r} \text{c) } 4.152 \\ - 4.097 \\ \hline 0.055 \end{array}$$

$$\begin{array}{r} \text{d) } 3.652 \\ - 1.984 \\ \hline 1.668 \end{array}$$

Practice

1. Add. Use subtraction to check each answer.

$$\begin{array}{r} \text{a) } 4.157 \quad 10.503 \\ + 6.346 \quad - 6.346 \\ \hline 10.503 \quad 4.157 \end{array} \quad \begin{array}{r} \text{b) } 27.309 \quad 41.476 \\ + 14.167 \quad - 14.167 \\ \hline 41.476 \quad 27.309 \end{array} \quad \begin{array}{r} \text{c) } 3.187 \quad 7.866 \\ + 4.679 \quad - 4.679 \\ \hline 7.866 \quad 3.187 \end{array}$$

$$\begin{array}{r} \text{d) } 5.138 \quad 17.487 \\ + 12.349 \quad - 12.349 \\ \hline 17.487 \quad 5.138 \end{array} \quad \begin{array}{r} \text{e) } 0.573 \quad 5.070 \\ + 4.497 \quad - 4.497 \\ \hline 5.070 \quad 0.573 \end{array} \quad \begin{array}{r} \text{f) } 36.234 \quad 51.109 \\ + 14.875 \quad - 14.875 \\ \hline 51.109 \quad 36.234 \end{array}$$

2. Subtract. Use addition to check each answer.

$$\begin{array}{r} \text{a) } 7.243 \quad 4.436 \\ - 2.807 \quad + 2.807 \\ \hline 4.436 \quad 7.243 \end{array} \quad \begin{array}{r} \text{b) } 4.583 \quad 2.245 \\ - 2.338 \quad + 2.338 \\ \hline 2.245 \quad 4.583 \end{array} \quad \begin{array}{r} \text{c) } 13.040 \quad 5.178 \\ - 7.862 \quad + 7.862 \\ \hline 5.178 \quad 13.040 \end{array}$$

$$\begin{array}{r} \text{d) } 11.431 \quad 2.668 \\ - 8.763 \quad + 8.763 \\ \hline 2.668 \quad 11.431 \end{array} \quad \begin{array}{r} \text{e) } 4.010 \quad 1.148 \\ - 2.862 \quad + 2.862 \\ \hline 1.148 \quad 4.010 \end{array} \quad \begin{array}{r} \text{f) } 73.832 \quad 22.067 \\ - 51.765 \quad + 51.765 \\ \hline 22.067 \quad 73.832 \end{array}$$

3. The difference in the masses of 2 objects is 0.479 kg. **Sample Answers**

a) What might the mass of each object be? 2.567 kg and 2.088 kg

b) What might the objects be? Two beef roasts

4. Salvatore ran 2.457 km on Saturday and 3.169 km on Sunday.

a) How far did Salvatore run in all? 5.626 km

b) How much further did he run on Sunday than on Saturday?
0.712 km

Stretch Your Thinking

Use each of the digits 1 to 8 once to make this subtraction true.

Sample Answer

$$\begin{array}{r} \boxed{3} \boxed{8} \boxed{6} \boxed{4} \\ - \boxed{2} \boxed{5} \boxed{1} \boxed{7} \\ \hline 1 \ . \ 3 \ 4 \ 7 \end{array}$$

Multiplying Decimals by 10, 100, 1000, 10 000



Quick Review

Use mental math to multiply a decimal by 10, 100, 1000, and 10 000.

- | | |
|---|---|
| ➤ When you multiply a decimal by 10,
the digits shift 1 place to the left.
You show this by moving the decimal
point 1 place to the right. | $2.45 \times 10 = 24.5$
$0.432 \times 10 = 4.32$
$6.8 \times 10 = 68$ |
| ➤ When you multiply a decimal by 100,
the digits shift 2 places to the left.
You show this by moving the decimal
point 2 places to the right. | $1.367 \times 100 = 136.7$
$5.3 \times 100 = 530$
$0.25 \times 100 = 25$ |
| ➤ When you multiply a decimal by 1000,
the digits shift 3 places to the left.
You show this by moving the decimal
point 3 places to the right. | $5.846 \times 1000 = 5846$
$3.21 \times 1000 = 3210$
$0.004 \times 1000 = 4$ |
| ➤ When you multiply a decimal by 10 000,
the digits shift 4 places to the left.
You show this by moving the decimal
point 4 places to the right. | $0.245 \times 10\,000 = 2450$
$1.26 \times 10\,000 = 12\,600$
$0.8 \times 10\,000 = 8000$ |

Try These

Use mental math to find each product.

1. a) $6.5 \times 10 = \underline{65}$ b) $7.34 \times 10 = \underline{73.4}$ c) $0.461 \times 10 = \underline{4.61}$
 $6.5 \times 100 = \underline{650}$ $7.34 \times 100 = \underline{734}$ $0.461 \times 100 = \underline{46.1}$
 $6.5 \times 1000 = \underline{6500}$ $7.34 \times 1000 = \underline{7340}$ $0.461 \times 1000 = \underline{461}$
 $6.5 \times 10\,000 = \underline{65\,000}$ $7.34 \times 10\,000 = \underline{73\,400}$ $0.461 \times 10\,000 = \underline{4610}$
2. a) $1.9 \times 10 = \underline{19}$ b) $6.73 \times 100 = \underline{673}$ c) $9.365 \times 10\,000 = \underline{93\,650}$
d) $2.6 \times 100 = \underline{260}$ e) $7.2 \times 1000 = \underline{7200}$ f) $0.486 \times 1000 = \underline{486}$
g) $2.63 \times 10 = \underline{26.3}$ h) $1.123 \times 100 = \underline{112.3}$ i) $0.586 \times 10\,000 = \underline{5860}$

Dividing Decimals by 10, 100, 1000, 10 000



Quick Review

Use mental math to divide a decimal by 10, 100, 1000, and 10 000.

- | | |
|---|---|
| ➤ When you divide a decimal by 10,
the digits shift 1 place to the right.
You show this by moving the decimal
point 1 place to the left. | $3.62 \div 10 = 0.362$
$8.7 \div 10 = 0.87$
$6.8 \div 10 = 0.68$ |
| ➤ When you divide a decimal by 100,
the digits shift 2 places to the right.
You show this by moving the decimal
point 2 places to the left. | $1.63 \div 100 = 0.0163$
$5.6 \div 100 = 0.056$
$3 \div 100 = 0.03$ |
| ➤ When you divide a decimal by 1000,
the digits shift 3 places to the right.
You show this by moving the decimal
point 3 places to the left. | $4.415 \div 1000 = 0.004\ 15$
$7.2 \div 1000 = 0.0072$
$1 \div 1000 = 0.001$ |
| ➤ When you divide a decimal by 10 000,
the digits shift 4 places to the right.
You show this by moving the decimal
point 4 places to the left. | $7.5 \div 10\ 000 = 0.000\ 75$
$1.4 \div 10\ 000 = 0.000\ 14$
$6 \div 10\ 000 = 0.0006$ |

Try These

Use mental math to find each quotient.

1. a) $8.2 \div 10 = \underline{0.82}$ b) $5 \div 10 = \underline{0.5}$
 $8.2 \div 100 = \underline{0.082}$ $5 \div 100 = \underline{0.05}$
 $8.2 \div 1000 = \underline{0.0082}$ $5 \div 1000 = \underline{0.005}$
 $8.2 \div 10\ 000 = \underline{0.000\ 82}$ $5 \div 10\ 000 = \underline{0.0005}$
2. a) $3.4 \div 10 = \underline{0.34}$ b) $1.63 \div 100 = \underline{0.0163}$ c) $1.12 \div 1000 = \underline{0.001\ 12}$
d) $0.5 \div 100 = \underline{0.005}$ e) $8 \div 10\ 000 = \underline{0.0008}$ f) $7 \div 10\ 000 = \underline{0.0007}$
g) $5.17 \div 10 = \underline{0.517}$ h) $9.6 \div 1000 = \underline{0.0096}$ i) $6.382 \div 10 = \underline{0.6382}$

Multiplying Decimals by a Whole Number



Quick Review

You can use what you know about multiplying whole numbers to multiply a decimal by a whole number.

Multiply: 2.936×4

- First estimate.

Round 2.936 to 3.

$$3 \times 4 = 12$$

So 2.936×4 is about 12.

- Record the numbers without the decimal point.

Multiply as you would with whole numbers.

- Use the estimate to place the decimal point in the product.

11.744 is close to 12, so

2.936×4 is 11.744.

2936

$\times 4$

24

120

3600

8000

11.744

Try These

Multiply.

1. a)
$$\begin{array}{r} 5.18 \\ \times 5 \\ \hline 25.9 \end{array}$$

b)
$$\begin{array}{r} 1.734 \\ \times 8 \\ \hline 13.872 \end{array}$$

c)
$$\begin{array}{r} 0.143 \\ \times 4 \\ \hline 0.572 \end{array}$$

d)
$$\begin{array}{r} 9.431 \\ \times 2 \\ \hline 18.862 \end{array}$$

Practice

1. Use paper and pencil to find each product.

Record the products on the lines.

Then use the letters next to the products to solve this riddle.

Why did the jellybean
go to school?

$0.396 \times 5 = \underline{1.98} \text{ (S)}$

$1.637 \times 3 = \underline{4.911} \text{ (A)}$

$1.842 \times 2 = \underline{3.684} \text{ (X)}$

$1.004 \times 7 = \underline{7.028} \text{ (T)}$

$0.176 \times 4 = \underline{0.704} \text{ (B)}$

$8.145 \times 6 = \underline{48.87} \text{ (C)}$

$2.534 \times 2 = \underline{5.068} \text{ (D)}$

$0.941 \times 9 = \underline{8.469} \text{ (W)}$

$1.935 \times 4 = \underline{7.74} \text{ (M)}$

$2.123 \times 4 = \underline{8.492} \text{ (N)}$

$0.132 \times 2 = \underline{0.264} \text{ (E)}$

$4.113 \times 2 = \underline{8.226} \text{ (R)}$

$3.005 \times 3 = \underline{9.015} \text{ (I)}$

$1.254 \times 3 = \underline{3.762} \text{ (U)}$

$0.524 \times 6 = \underline{3.144} \text{ (H)}$

$0.148 \times 5 = \underline{0.74} \text{ (O)}$

B E C A U S E

S H E

0.704 0.264 48.87 4.911 3.762 1.98 0.264

1.98 3.144 0.264

W A N T E D

T O

B E

8.469 4.911 8.492 7.028 0.264 5.068

7.028 0.74

0.704 0.264

A

S M A R T I E

4.911

1.98 7.74 4.911 8.226 7.028 9.015 0.264

Stretch Your Thinking

What whole number would you multiply 6.374 by
to get the product 25.496? 4

Dividing Decimals by a Whole Number



Quick Review

Here is one way to divide a decimal by a whole number.

Divide: $7.938 \div 2$

- Record the numbers without the decimal point.

$$\begin{array}{r} 2 \overline{) 71938} \\ \underline{14} \\ 27 \\ \underline{54} \\ 13 \\ \underline{26} \\ 13 \\ \underline{26} \\ 18 \\ \underline{36} \\ 0 \end{array}$$

Divide as you would with whole numbers.

$$3.969$$

- Estimate to place the decimal point.

7.938 rounds to 8 .

$8 \div 2$ is 4 .

The answer must be a little less than 4 .

So, $7.938 \div 2 = 3.969$

- Check by multiplying:

$$3.969 \times 2 = 7.938$$

So, the answer is correct.

Try These

1. Divide.

a) $3.896 \div 4$

$$\begin{array}{r} 4 \overline{) 3896} \\ \underline{12} \\ 26 \\ \underline{20} \\ 69 \\ \underline{68} \\ 16 \\ \underline{16} \\ 0 \end{array}$$

b) $5.138 \div 2$

$$\begin{array}{r} 2 \overline{) 5138} \\ \underline{10} \\ 13 \\ \underline{10} \\ 38 \\ \underline{36} \\ 28 \\ \underline{26} \\ 28 \\ \underline{26} \\ 2 \end{array}$$

c) $3.045 \div 5$

$$\begin{array}{r} 5 \overline{) 3045} \\ \underline{15} \\ 15 \\ \underline{15} \\ 04 \\ \underline{00} \\ 45 \\ \underline{45} \\ 0 \end{array}$$

d) $0.948 \div 2$

$$\begin{array}{r} 2 \overline{) 0948} \\ \underline{04} \\ 54 \\ \underline{52} \\ 28 \\ \underline{26} \\ 28 \\ \underline{26} \\ 2 \end{array}$$

e) $0.924 \div 3$

$$\begin{array}{r} 3 \overline{) 0924} \\ \underline{06} \\ 32 \\ \underline{30} \\ 24 \\ \underline{24} \\ 0 \end{array}$$

f) $7.896 \div 4$

$$\begin{array}{r} 4 \overline{) 7896} \\ \underline{16} \\ 38 \\ \underline{32} \\ 69 \\ \underline{68} \\ 16 \\ \underline{16} \\ 0 \end{array}$$

g) $1.268 \div 2$

$$\begin{array}{r} 2 \overline{) 1268} \\ \underline{04} \\ 86 \\ \underline{84} \\ 28 \\ \underline{26} \\ 28 \\ \underline{26} \\ 2 \end{array}$$

h) $3.762 \div 6$

$$\begin{array}{r} 6 \overline{) 3762} \\ \underline{12} \\ 25 \\ \underline{24} \\ 16 \\ \underline{12} \\ 42 \\ \underline{42} \\ 0 \end{array}$$

Practice

1. Divide.

$$\begin{array}{r} 5 \overline{)5.335} \\ 1.067 \end{array}$$

$$\begin{array}{r} 4 \overline{)6.148} \\ 1.537 \end{array}$$

$$\begin{array}{r} 7 \overline{)0.315} \\ 0.045 \end{array}$$

$$\begin{array}{r} 2 \overline{)4.738} \\ 2.369 \end{array}$$

$$\begin{array}{r} 3 \overline{)0.363} \\ 0.121 \end{array}$$

$$\begin{array}{r} 8 \overline{)1.144} \\ 0.143 \end{array}$$

$$\begin{array}{r} 6 \overline{)7.542} \\ 1.257 \end{array}$$

$$\begin{array}{r} 8 \overline{)17.072} \\ 2.134 \end{array}$$

2. Multiply to check each answer in question 1.

$$\begin{array}{r} 1.067 \\ \times 5 \\ \hline 5.335 \end{array}$$

$$\begin{array}{r} 1.537 \\ \times 4 \\ \hline 6.148 \end{array}$$

$$\begin{array}{r} 0.045 \\ \times 7 \\ \hline 0.315 \end{array}$$

$$\begin{array}{r} 2.369 \\ \times 2 \\ \hline 4.738 \end{array}$$

$$\begin{array}{r} 0.121 \\ \times 3 \\ \hline 0.363 \end{array}$$

$$\begin{array}{r} 0.143 \\ \times 8 \\ \hline 1.144 \end{array}$$

$$\begin{array}{r} 1.257 \\ \times 6 \\ \hline 7.542 \end{array}$$

$$\begin{array}{r} 2.134 \\ \times 8 \\ \hline 17.072 \end{array}$$

3. Renee paid \$12.96 for 6 bags of chips.

How much did each bag cost? \$2.16

4. Asmaa paid \$9.96 for 3 pairs of socks.

Jagdeep paid \$14.75 for 5 pairs of socks.

Which person got the better deal? Explain.

$$\underline{\$9.96 \div 3 = \$3.32}$$

$$\underline{\$14.75 \div 5 = \$2.95}$$

Jagdeep got the better deal because he paid less per pair.

Stretch Your Thinking

What whole number would you divide 2.049 by to get the quotient 0.683? 3

Dividing Decimals



Quick Review

► Divide: $9.784 \div 5$

Estimate first: Round 9.784 to 10.

$$10 \div 5 = 2$$

So, $9.784 \div 5$ is a little less than 2.

Divide:

$$\begin{array}{r} 5 \overline{) 9.47283440} \\ 1.9568 \end{array}$$



Sometimes you need to write zeros in the dividend so you can continue to divide until the remainder is 0.

Round the quotient to the nearest thousandth: $9.784 \div 5$ is about 1.957.

► Divide: $25 \div 3$

Estimate first: Round 25 to 24.

$$24 \div 3 = 8$$

So, $25 \div 3$ is a little more than 8.

Divide:

$$\begin{array}{r} 3 \overline{) 25.101010} \\ 8.3333 \end{array}$$



Sometimes you never get a remainder of zero.



This is called a **repeating decimal**.

Round the quotient to the nearest tenth: $25 \div 3$ is about 8.3.

Try These

1. Divide until the remainder is zero.

a) $4 \overline{) 6.374}$
1.5935

b) $2 \overline{) 49.67}$
24.835

c) $5 \overline{) 0.473}$
0.0946

d) $2 \overline{) 29.77}$
14.885

e) $5 \overline{) 4.573}$
0.9146

f) $8 \overline{) 0.124}$
0.0155

Practice

1. Divide until the remainder is zero.

$$\begin{array}{r} 6 \overline{)4.275} \\ \underline{0.7125} \end{array}$$

$$\begin{array}{r} 8 \overline{)45} \\ \underline{5.625} \end{array}$$

$$\begin{array}{r} 5 \overline{)234} \\ \underline{46.8} \end{array}$$

$$\begin{array}{r} 2 \overline{)0.007} \\ \underline{0.0035} \end{array}$$

$$\begin{array}{r} 2 \overline{)0.5} \\ \underline{0.25} \end{array}$$

$$\begin{array}{r} 4 \overline{)27} \\ \underline{6.75} \end{array}$$

2. Use a calculator to divide. Round each quotient to the nearest hundredth.

$$\begin{array}{r} 4 \div 11 \\ \underline{0.36} \end{array}$$

$$\begin{array}{r} 5 \div 8 \\ \underline{0.63} \end{array}$$

$$\begin{array}{r} 30 \div 11 \\ \underline{2.73} \end{array}$$

$$\begin{array}{r} 6 \div 7 \\ \underline{0.86} \end{array}$$

3. Four students buy a box of popsicles for \$4.29 and a bag of pretzels for \$3.97. How much should each person contribute to the total cost?

$$\underline{\$4.29 + \$3.97 = \$8.26} \quad \underline{\$8.26 \div 4 = \$2.065}$$

Each person should contribute \$2.07. There will be 2¢ left over.

4. Nataliya jogged 1.367 km in 6 min.

About how far did she jog each minute?

Give your answer in as many different units as you can.

She jogged about 0.228 km each minute.

0.228 km, 228 m, 2280 dm, 22 800 cm, 228 000 mm

5. Twelve friends shared 8 small pizzas equally.

How many pizzas did each person get?

$8 \div 12 = 0.666$ Each person gets about 0.67 pizza.

Stretch Your Thinking

Sample Answers

1. a) Write a story problem you can solve by dividing 11 by 7.

Seven friends decide to share the cost of an \$11 cake equally.

How much will each friend have to pay?

b) Solve your problem.

$$\underline{\$11 \div 7 = \$1.571}$$

Each friend will have to pay \$1.58. There will be 6¢ left over.