Lesson 19a Dividing decimals by whole numbers

A. Find $17.65 \div 5$.

$5\overline{)17.65}$

Put a decimal point in the answer directly above the decimal point in the dividend, 17.65.

$$\begin{array}{r} 3.53 \\ 5\overline{)17.65} \\ -15\downarrow \\ \hline 26 \\ -25\downarrow \\ \hline 15 \\ -15 \\ \hline 0 \end{array}$$

Then divide in the same way that you divide whole numbers.

B. Find $4.48 \div 32$.

$32\overline{)4.48}$

Put a decimal point in the answer.

$$\begin{array}{r} .14 \\ 32\overline{)4.48} \\ -32\downarrow \\ \hline 128 \\ -128 \\ \hline 0 \end{array}$$

Divide.

Divide.

1. $2\overline{)17.3}$
2. $4\overline{)2.96}$
3. $7\overline{)1.47}$
4. $3\overline{)2.13}$
5. $15\overline{)43.5}$
6. $12\overline{)5.04}$
7. $23\overline{)370.3}$
8. $31\overline{)77.5}$
9. $3.666 \div 6$
10. $57.5 \div 25$
11. $1.887 \div 17$
12. $437.9 \div 29$

Objective/Divide a decimal by a whole numb

Lesson 20a Dividing by decimals

In division you can multiply the dividend and the divisor by the same number without changing the answer.

$$3\overline{)12}\quad 4 \qquad 30\overline{)120}\quad 4 \qquad 300\overline{)1200}\quad 4$$

A. Find $.45 \div .5$.

Multiply .45 and .5 by 10 to make the divisor, .5, a whole number.

$5\overline{).45}$ To multiply by 10, move each decimal point one place to the right.

$$\begin{array}{r} .9 \\ 5\overline{).45} \\ -\,45 \\ \hline 0 \end{array}$$

Put a decimal point in the answer and divide 4.5 by 5.

B. Find $11.7 \div .18$.

Multiply 11.7 and .18 by 100 to make the divisor, .18, a whole number.

$$\begin{array}{r} 65. \\ 18\overline{)1170.} \\ -108 \\ \hline 90 \\ -90 \\ \hline 0 \end{array}$$

To multiply by 100, move each decimal point two places to the right. Divide 1170 by 18.

Divide.

1. $5\overline{).10}$
2. $6\overline{)18.0}$
3. $.06\overline{).1284}$
4. $.3\overline{).276}$
5. $.13\overline{).26}$
6. $1.5\overline{)3}$
7. $1.5\overline{)7.5}$
8. $2.5\overline{)62.5}$
9. $.2109 \div 1.9$
10. $.8379 \div .009$
11. $14.952 \div .042$
12. $1.245 \div 8.3$

Objective/Divide by decimals.

Lesson 30a Dividing decimals by whole numbers

Find 78.32 ÷ 8.

$$8\overline{)78.32}$$

Put a decimal point in the answer directly above the decimal point in 78.32.

$$\begin{array}{r} 9.79 \\ 8\overline{)78.32} \\ -72 \\ \hline 63 \\ -56 \\ \hline 72 \\ -72 \\ \hline 0 \end{array}$$

Divide in the same way that you divide whole numbers.

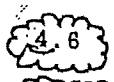
Divide.

1. $4\overline{)52.8}$
2. $7\overline{)6.51}$
3. $5\overline{)76.5}$
4. $8\overline{)6.304}$
5. $6\overline{)166.8}$
6. $7\overline{)316.4}$
7. $24\overline{)16.8}$
8. $33\overline{)149.16}$
9. 32.181 ÷ 51
10. 47.52 ÷ 8
11. 551.8 ÷ 62
12. 112.7 ÷ 49

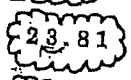
Lesson 31a Dividing decimals by 10, 100, or 1000

A. To divide by 10, move the decimal point *one* place to the *left*.

4.6 ÷ 10 = .46



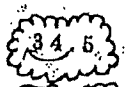
23.81 ÷ 10 = 2.381



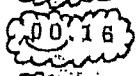
9 ÷ 10 = .9

B. To divide by 100, move the decimal point *two* places to the *left*.

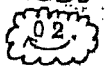
34.5 ÷ 100 = .345



.16 ÷ 100 = .0016

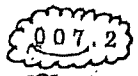


2 ÷ 100 = .02

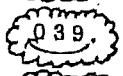


C. To divide by 1000, move the decimal point *three* places to the *left*.

7.2 ÷ 1000 = .0072



39 ÷ 1000 = .039



4005 ÷ 1000 = 4.005

Divide.

1. 3.8 ÷ 10
2. .08 ÷ 10
3. 2.701 ÷ 10
4. .5 ÷ 10
5. 18 ÷ 10
6. 208 ÷ 10
7. 45.3 ÷ 100
8. 25 ÷ 100
9. 1.8 ÷ 100
10. .45 ÷ 100
11. .9 ÷ 100
12. 6 ÷ 100
13. 58.1 ÷ 1000
14. 4628 ÷ 1000
15. 73 ÷ 1000
16. 8 ÷ 1000
17. 5.2 ÷ 1000
18. 101 ÷ 1000
19. .26 ÷ 100
20. .34 ÷ 10
21. 55.9 ÷ 100
22. 1 ÷ 1000
23. .061 ÷ 10
24. 3.07 ÷ 10

Lesson 21a Dividing decimals: zeros in the quotient

A. Find .0081 ÷ 9.

$$9\overline{).0081}$$ Write a decimal point in the answer. How many 9's in 0? 0 Write 0 above each 0 in the dividend.

$$9\overline{).0081}$$ How many 9's in 8? 0 Write 0 above the 8 in the dividend.

$$9\overline{).0081}$$ $$-81$$ $$0$$ How many 9's in 81? 9 Write 9 in the answer.

B. Find 16.2 ÷ .27.

$$.27\overline{)16.20}$$ Multiply .27 and 16.2 by 100.

$$.27\overline{)16.20}$$ $$-16\ 2$$ $$00$$ $$-\ 0$$ $$0$$ Write a decimal point in the answer. Divide.

When you divide decimals, you sometimes have to write one or more zeros in the quotient (answer).

Draw a ring around the correct answer.

1. .04 ÷ .8

   .005 .05 50

2. .063 ÷ 7

   .9 .09 .009

3. .0252 ÷ .36

   .7 .07 .007

Divide.

4. $.3\overline{).015}$

5. $.07\overline{).1407}$

6. $2\overline{).0202}$

7. $.06\overline{)4.32}$

8. $.5\overline{).010}$

9. $44\overline{).2508}$

10. $1.8\overline{)5.472}$

11. $.12\overline{)9.6}$

Objective/Divide decimals with zeros in the quotient.

Lesson 22a Dividing decimals by 10, 100, or 1000

A. Divide by 10.

384.2 ÷ 10 = 38.42
5.27 ÷ 10 = .527
.03 ÷ 10 = .003
7 ÷ 10 = .7

Move the decimal point in the dividend one place to the left.

B. Divide by 100.

384.2 ÷ 100 = 3.842
5.27 ÷ 100 = .0527
.03 ÷ 100 = .0003
7 ÷ 100 = .07

Move the decimal point in the dividend two places to the left.

C. Divide by 1000.

384.2 ÷ 1000 = .3842
5.27 ÷ 1000 = .00527
.03 ÷ 1000 = .00003
7 ÷ 1000 = .007

Move the decimal point in the dividend three places to the left.

Divide each number by 10.

1. 9.746 _____
2. 246.8 _____
3. .062 _____

Divide each number by 100.

4. 25 _____
5. 4.683 _____
6. .034 _____

Divide each number by 1000.

7. 1210.5 _____
8. 339.6 _____
9. .08 _____

Draw a ring around the correct answer.

10. 1 ÷ 1000
.01 .001 .0001

11. 3.64 ÷ 100
364 .364 .0364

12. .2 ÷ 10
.02 .002 .0002

13. .51 ÷ 100
5.1 .0051 .051

14. .038 ÷ 1000
.38 .0038 .000038

15. 9.04 ÷ 10
.0904 .904 90.4

16. 4 ÷ 100
.4 .004 .04

17. .003 ÷ 10
.03 .0003 .00003

18. 26 ÷ 1000
.026 .26 2.6

Objective/Divide decimals by 10, 100, or 1000.

Lesson 23a Rounding decimals

Round each decimal.

	Nearest tenth	Nearest hundredth	Nearest thousandth	
	↓	↓	↓	
Decimal	3.0785	3.0785	3.0785	Point to the digit in the place to which you are rounding. If the next digit to the right (the key digit) is 5 or greater, add 1 to the digit you are pointing to. Drop the other digits to the right.
Rounded decimal	3.1	3.08	3.079	
	↓	↓	↓	
Decimal	6.1302	6.1302	6.1302	If the next digit to the right (the key digit) is less than 5, do *not* change the digit you are pointing to. Drop the other digits to the right.
Rounded decimal	6.1	6.13	6.130	

Round to the nearest tenth.

1. .13 .1
2. 3.98 4.0
3. 15.19 _____
4. 2.354 _____
5. .08 _____
6. .458 _____
7. 28.218 _____
8. .067 _____

Round to the nearest hundredth.

9. 1.421 _____
10. 17.5553 _____
11. .0318 _____
12. 2.796 _____

Round to the nearest thousandth.

13. 8.3872 _____
14. .0009 _____
15. 18.3645 _____
16. 4.6977 _____

Lesson 24a Rounding quotients

A. Find .359 ÷ .2. Round your answer to the nearest tenth.

Divide until the quotient is in hundredths. Then round to the nearest tenth.

$$
\begin{array}{r}
1.79 \longrightarrow 1.8 \\
.2\overline{)\,.359} \\
-2 \\
\hline
15 \\
-14 \\
\hline
19 \\
-18 \\
\hline
1
\end{array}
$$

B. Find 6.183 ÷ 4.2. Round your answer to the nearest thousandth.

Divide until the quotient is in ten-thousandths (4 places). Then round to the nearest thousandth.

$$
\begin{array}{r}
1.4721 \longrightarrow 1.472 \\
4.2\overline{)\,6.1830\,0} \\
-4\,2 \\
\hline
1\,98 \\
-1\,68 \\
\hline
303 \\
-294 \\
\hline
90 \\
-84 \\
\hline
60 \\
-42 \\
\hline
18
\end{array}
$$

You must write zeros until there are four places after the decimal point in 61.83.

Divide.
Round the answer to the nearest tenth.

1. $7\overline{)\,5.00}$

2. $.3\overline{)\,.129}$

3. $.5\overline{)\,4.375}$

4. $1.2\overline{)\,8.592}$

Round the answer to the nearest hundredth.

5. $.4\overline{)\,.0672}$

6. $1.5\overline{)\,7.5975}$

7. $.3\overline{)\,.3267}$

8. $.25\overline{)\,.0105}$

Round the answer to the nearest thousandth.

9. $.5\overline{)\,.01745}$

10. $11\overline{)\,150}$

$$
\begin{array}{r}
1 \\
11\overline{)\,150} \\
-11\,1 \\
\hline
40
\end{array}
$$