Chapter 8 Decimals

Practice 1   Understanding Thousandths

Write the decimal shown in each place-value chart.

Example

Ones	Tenths	Hundredths	Thousandths
	○ ○	○ ○ ○	○ ○ ○ ○ ○ ○ ○

0.237

1.

Ones	Tenths	Hundredths	Thousandths
○ ○ ○ ○		○ ○ ○ ○ ○	○ ○ ○ ○ ○

4.055

2.
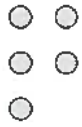
Ones	Tenths	Hundredths	Thousandths
○ ○ ○ ○ ○ ○			○ ○ ○ ○ ○ ○ ○ ○ ○

6.009

Write the decimal shown in the place-value chart.

3.

Ones	Tenths	Hundredths	Thousandths
○ ○ ○ ○ ○	○ ○	○	

_5.21_

Mark X to show where each decimal is located.

4. 0.006   5.   0.024   6.   0.033

0.015

0   0.01   0.02   0.03   0.04
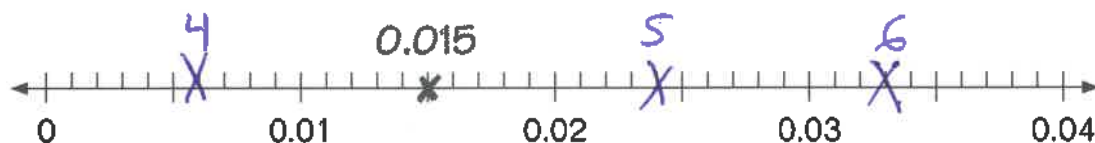
Write the decimal shown by each arrow.

7.

1   1.01   1.02   1.03   1.04

| 1.002 | | 1.016 | | 1.027 | 1.034 |
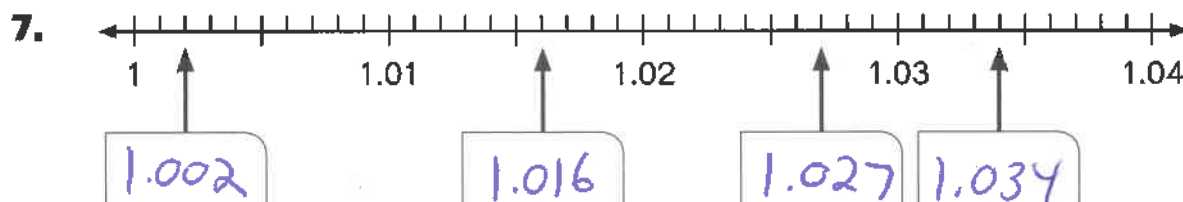
Complete.

8.   4 hundredths = __40__ thousandths

9.   8 tenths 5 hundredths = __850__ thousandths

10.   20 thousandths = __2__ hundredths

11.   125 thousandths = 1 tenth __25__ thousandths

Complete.

12. $0.126 = 1$ tenth 2 hundredths ___6___ thousandths

13. $0.352 = 3$ tenths ___5___ hundredths 2 thousandths

Write the equivalent decimal.

14.   7 thousandths = ___.007___   **15.**   19 thousandths = ___.019___

16.   235 thousandths = ___.235___   **17.**   300 thousandths = ___.300___

Write each fraction as a decimal.

18. $\frac{13}{1000} =$ ___.013___   **19.** $\frac{55}{1000} =$ ___.055___

20. $\frac{228}{1000} =$ ___.228___   **21.** $\frac{430}{1000} =$ ___.430___

Write each mixed number as a decimal.

22. $2\frac{3}{1000} =$ ___2.003___   **23.** $6\frac{61}{1000} =$ ___6.061___

24. $7\frac{107}{1000} =$ ___7.107___   **25.** $8\frac{240}{1000} =$ ___8.240___

Write each improper fraction as a decimal.

26. $\frac{1005}{1000} =$ ___1.005___   **27.** $\frac{1013}{1000} =$ ___1.013___

28. $\frac{2341}{1000} =$ ___2.341___   **29.** $\frac{3450}{1000} =$ ___3.450___

Complete.

30. 0.014 = __14__ thousandths

31. 0.178 = __178__ thousandths

32. 0.76 = __760__ thousandths

33. 1.035 = 1 one and __35__ thousandths

1.234 can be written in expanded form as $1 + \frac{2}{10} + \frac{3}{100} + \frac{4}{1000}$.
Write each decimal in expanded notation.

34. $4.153 = \boxed{4} + \boxed{\frac{1}{10}} + \boxed{\frac{5}{100}} + \boxed{\frac{3}{1000}}$

35. $8.381 = \boxed{8} + \boxed{\frac{3}{10}} + \boxed{\frac{8}{100}} + \boxed{\frac{1}{1000}}$

9.876 can be written in expanded form as 9 + 0.8 + 0.07 + 0.006.
Write each decimal in expanded notation.

36. 6.426 = __6__ + __.4__ + __.02__ + __.006__

37. 3.642 = __3__ + __.6__ + __.04__ + __.002__

Complete.

In 5.074,

38. the digit 4 is in the __thousandths__ place.

39. the value of the digit 7 is __.07__.

40. the digit 0 is in the __tenths__ place.

41. the digit 5 stands for __5 ones__.

Practice 2   Comparing and Rounding Decimals

Compare the decimals in each place-value chart.

Fill in the blanks. Write > or < in the ◯.

── *Example* ──────────────────────────────

Ones	Tenths	Hundredths	Thousandths
0	0	2	
0	0	1	5

_0.02_ is greater than _0.015_.

_0.02_ (**>**) _0.015_

──────────────────────────────────────

1.

Ones	Tenths	Hundredths	Thousandths
0	3	0	8
0	2	9	

_.29_ is less than _.308_.

_.29_ ◯ _.308_

2.

Ones	Tenths	Hundredths	Thousandths
4	0	9	1
4	1	9	

_4.091_ is less than _4.19_.

_4.091_ ◯ _4.19_

Write the greater decimal.

3.   11.6 or 21.8 _21.8_

4.   10.55 or 10.05 _10.55_

5.   20.07 or 20.01 _20.07_

6.   100.202 or 100.212 _100.212_

Write >, <, or = in each ( ).

7.   3.7 (>) 0.370

8.   0.150 (<) 0.51

9.   0.205 (<) 2.05

10.   2.3 (=) 2.30

Circle the greatest decimal and underline the least.

11.   1.03, (1.3,)   0.13

12.   0.5, (0.53,)   0.503

13.   (2.35,)   2.305,   2.035

14.   8.7,   8.07,   (8.701)

Order the decimals from least to greatest.

Example

3.33,   3.03,   3.303   _3.03,   3.303,   3.33_

15.   5.51,   5.051,   5.501   _5.051; 5.501; 5.51_

16.   4,   4.01,   4.001   _4; 4.001; 4.01_

17.   0.023,   0.203,   0.230   _.023; .203; .230_

Name: _____ **Date:** _____

Write the missing decimal in each box. Round the given decimal to the nearest hundredth.

18.

1.05   1.056   **1.06**
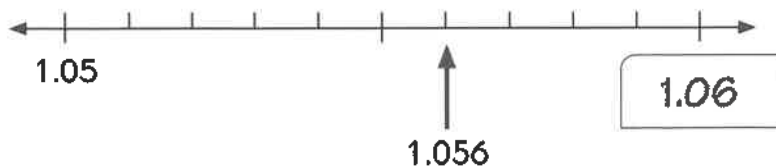
1.056 rounded to the nearest hundredth is ___1.06___.

19.

2.39   2.395   **2.40**
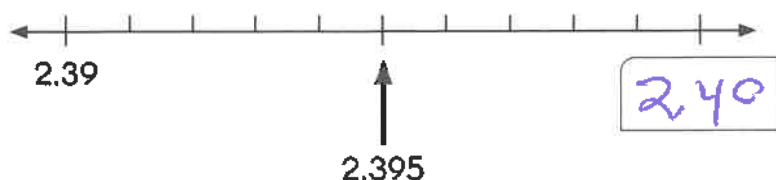
2.395 rounded to the nearest hundredth is ___2.40___.

20.

5.99   5.994   6.00
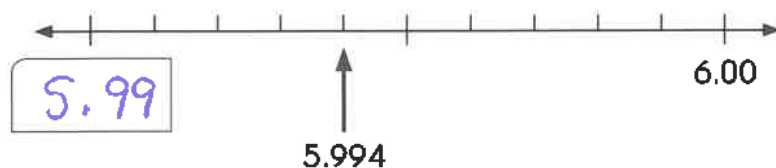
5.994 rounded to the nearest hundredth is ___5.99___.

Fill in the blanks.

21. The mass of a sewing needle is 0.585 gram.
Round the mass to the nearest hundredth of a gram.

___0.585 g___ rounds to ___.59g___.

22. The width of a pinhead is 0.098 centimeter.
Round the width to two decimal places.

___.098___ rounds to ___.10___.

23. 1 centimeter is equal to 0.394 inches.
Round 0.394 inches to the nearest hundredth of an inch.

___.394___ rounds to ___.39___.

Round each decimal to the nearest whole number, nearest tenth, and nearest hundredth.

24.

Decimal	Rounded to the Nearest		
	Whole Number	**Tenth**	**Hundredth**
1.049	1	1.0	1.05
3.753	4	3.8	3.75
2.199	2	2.2	2.20

Fill in the blanks.

25. A decimal rounded to the nearest tenth is 2.5.
Write two decimals that can be rounded to 2.5.

_2.49_ and _2.51_

26. A decimal rounded to the nearest hundredth is 4.09.
Write two decimals that can be rounded to 4.09.

_4.085_ and _4.094_

27. A decimal rounded to the nearest hundredth is 6.32.
This decimal is greater than 6.32.

What could this decimal be? _6.324_

28. A decimal rounded to the nearest hundredth is 7.01.
This decimal is less than 7.01.

What could this decimal be? _7.009_

Practice 3   Rewriting Decimals as Fractions and Mixed Numbers

Rewrite each decimal as a fraction or mixed number in simplest form.

Example
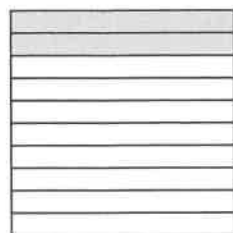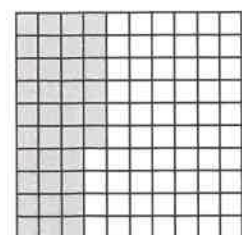
$0.2 = \dfrac{1}{5}$

1.
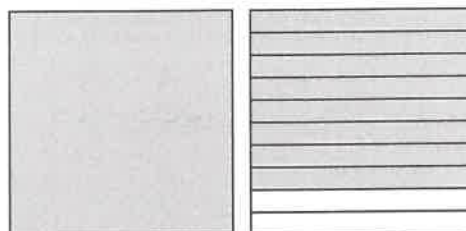
$1.8 = 1\dfrac{4}{5}$
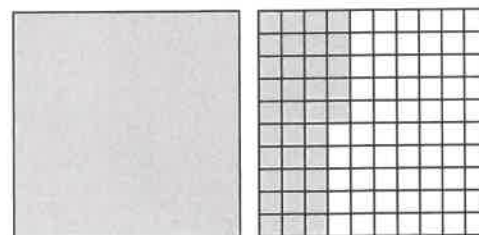
2.
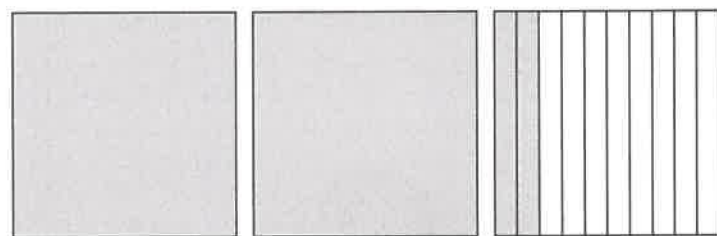
$2.2 = 2\dfrac{1}{5}$

3.
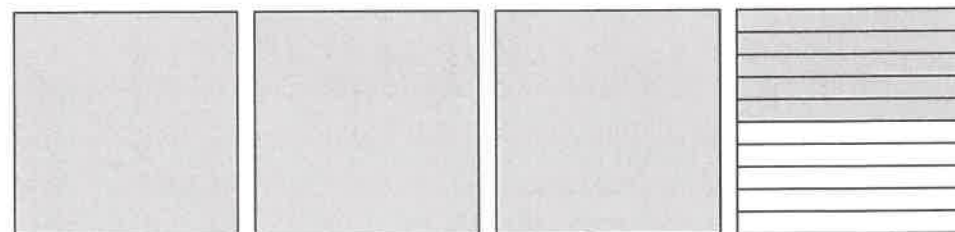
$3.5 = 3\dfrac{1}{2}$
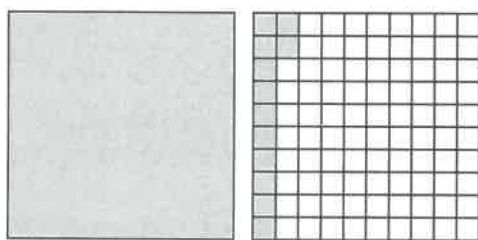
4.

$0.36 = \dfrac{9}{25}$

5.

$1.35 = 1\dfrac{7}{20}$

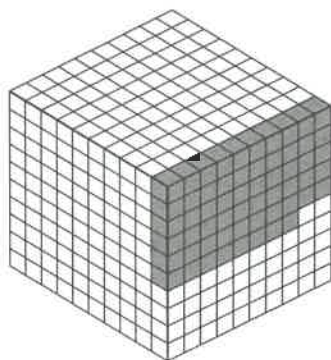**Rewrite each decimal as a fraction or mixed number in simplest form.**

6.
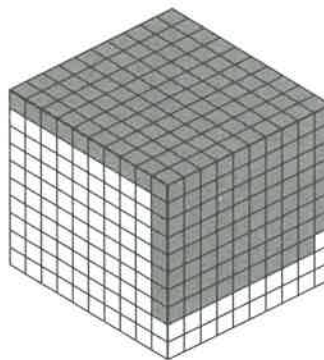
$$1.12 = 1\frac{3}{25}$$

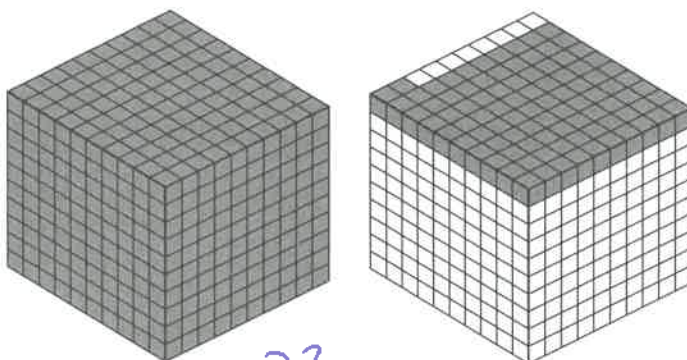**7.**
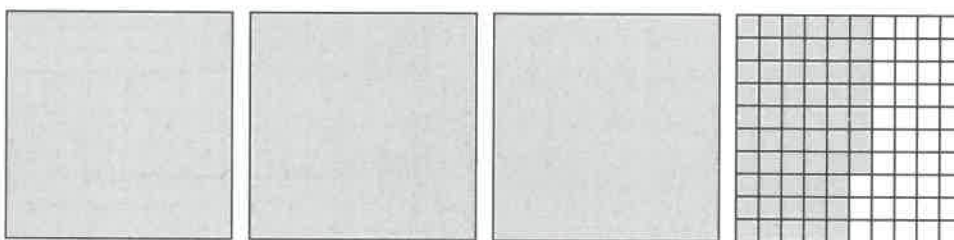
$$3.57 = 3\frac{57}{100}$$

8.

$$0.058 = \frac{29}{50}$$

9.

$$0.169 = \frac{169}{1000}$$

10.

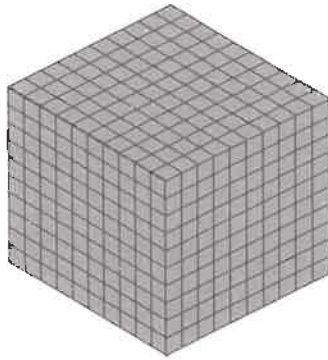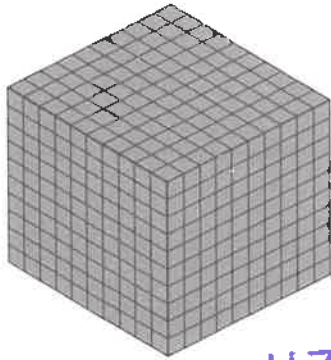$$1.092 = 1\frac{23}{250}$$

Rewrite the decimal as a mixed number in simplest form.

11.
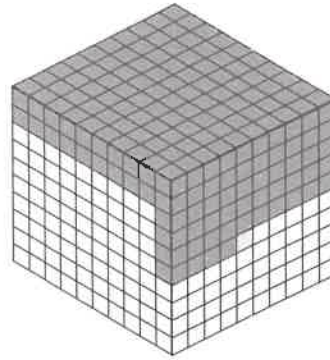
$2.235 = $ $2\frac{47}{200}$

Rewrite each decimal as a fraction or mixed number in simplest form.

12. 7.3 $7\frac{3}{10}$

13. 26.9 $26\frac{9}{10}$

14. 0.59 $\frac{59}{100}$

15. 15.82 $15\frac{41}{50}$

16. 1.28 $1\frac{7}{25}$

17. 4.109 $4\frac{109}{1000}$

18. 0.136 $\frac{17}{125}$
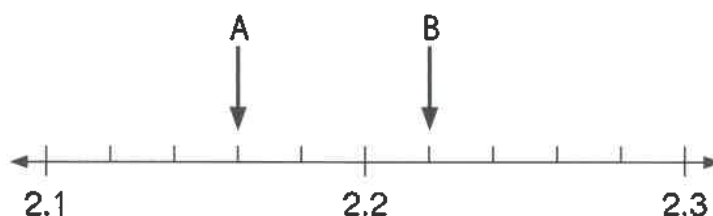
19. 3.602 $3\frac{301}{500}$

Math Journal

1. Explain why 1.8, 1.80, and 1.800 have the same value.

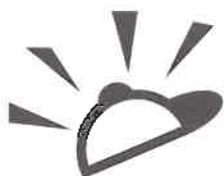$$1.8 = 1\frac{8}{10}$$

$$1.80 = 1\frac{80}{100} = 1\frac{8}{10}$$

$$1.800 = 1\frac{800}{1000} = 1\frac{8}{10}$$

2. Howard does not know how to find the values of A and B on the number line. Write the steps Howard should use to find these values.

A   B

2.1   2.2   2.3

Find the value of each mark on the number line first.

Put On Your Thinking Cap!

Challenging Practice

Solve.

1. You are given two numbers, 3.987 and 70.140.

    a. Round each number to the nearest tenth. *4.0 ; 70.1*

    b. Round each number to the nearest hundredth. *3.99 ; 70.14*

    c. Find the difference between your rounded answers for 3.987. *0.01*

    d Find the difference between your rounded answers for 70.140. *0.04*

    e. Are your answers in Exercises **a** and **b** the same? Explain why or why not. *NO*

Complete.

2. $4.129 = 4 + \dfrac{1}{10} + \dfrac{29}{\boxed{1000}}$

3. $2.075 = 2 + \dfrac{\boxed{70}}{1000} + \dfrac{5}{\boxed{1000}}$

4. $3.157 = \dfrac{\boxed{3150}}{1000} + \dfrac{7}{1000}$

Put On Your Thinking Cap!

Problem Solving

Solve. Show your work.

1. Kimberly has 3.25 kilograms of flour in a container. She adds 45 grams of flour to the container. How many kilograms of flour does she have now?

$$3.25 \text{ kg} = 3,250 \text{ g}$$
$$3,250 + 45 = 3,295$$
$$3,295 \text{ g} = 3.295 \text{ kg}$$

2. The weight of four objects are $3\frac{1}{5}$ pounds, $3\frac{39}{1000}$ pounds, $3\frac{99}{100}$ pounds and $3\frac{52}{10}$ pounds. Arrange the weights in order from least to greatest.

$$3\frac{39}{100} \text{ lb}, \quad 3\frac{1}{5}, \quad 3\frac{99}{100}, \quad 3\frac{53}{10}$$