

Name: **Key**

Hour:

### CHAPTER 2 STUDY GUIDE (DECIMALS)

#### 2.1 Writing Decimals: examples on pages 54-56

Write the phrase in standard form.

1. five and eight thousandths **5.008**

2. seventy-six hundredths **0.76**

Write the following in standard form.

5.  $5 + 0.9 + .001$  **5.901**

6.  $26 + 0.7 + .0004$  **26.7004**

Write each decimal in expanded form.

9. 12.7  **$1(10) + 2(1) + 7(.1)$**

10. 8.05  **$8(1) + 5(.01)$**

3. one hundred thirty-two and three tenths **132.3**

4. six hundred eighty-four millionths **0.000684**

7.  $9(0.1) + 5(0.01) + 8(.001) + 2(.0001)$  **.9582**

8.  $3(100) + 6(10) + 7(1) + 4(0.1) + 1(0.01)$  **367.41**

11. 0.516  **$5(.1) + 1(.01) + 6(.001)$**

12. 0.2938  **$2(.1) + 9(.01) + 3(.001) + 8(.0001)$**

#### 2.2 Comparing & Rounding: examples on pages 58-61

Round each decimal to the specified place value.

13. 1.091 (tenths) **1.1**

14. 251.3649 (hundredths) **251.36**

Compare by using  $>$ ,  $<$ , or  $=$ .

17. 0.5734  **$<$**  0.5743

18. 18.610  **$=$**  18.61

Round 283,645.158974 to the specified place value.

21. tenths **283,645.2**

22. hundredths **283,645.16**

15. 2,407.2355 (thousandths) **2,407.236**

16. 18,931.42637 (ten-thousandths) **18,931.4264**

19. 4.188  **$<$**  4.28

20. 0.71  **$>$**  0.701

23. ten-thousandths **283,645.1590**

24. hundred-thousandths **283,645.15897**

#### 2.3 Addition & Subtraction: examples on pages 63-64

> Tips: Align all decimal places before adding or subtracting.

25.  $521.2018 + 92.75193$   
**613.95373**

27.  $215.125 + (931.72 - 463.145)$   
**683.700**

26.  $8,421.5136 - 573.1689$   
**7848.3441**

28.  $872.3492 - (21.513 + 325.1589)$   
**525.6773**

#### 2.4 Multiplication: examples on pages 66-67

> Tips: (1) Multiply (2) Count the total number of decimal places from both numbers. (3) Starting from far right and moving left, place the decimal point so the new total has the same number of decimal places as the previous two numbers.

29.  $0.51 \times 5.392$   
**2.74992**

30.  $7.6 \times 9.384$   
**71.3184**

31.  $0.63479 \times 0.852$   
**.54084108**

32.  $2.758 \times 0.9364$   
**2.5825912**

## 2.5 Division: examples on pages 70-73

- **Tips:** Place the decimal point **directly above** where the answer will be located.
- **Tips:** (1) Divide the decimal and continue dividing until **one digit beyond** the rounding place. (2) Round the quotient to the specified place.
- **Tips:** (1) Move the decimal on the outside until there is **no decimal**. (2) Move the decimal on the inside the **same number** as the outside.

33.  $65.92 \div 8$

$$\begin{array}{r} 8.24 \\ 8 \overline{) 65.92} \\ \underline{-64} \phantom{00} \\ 19 \phantom{00} \\ \underline{-16} \phantom{00} \\ 32 \phantom{00} \\ \underline{-32} \phantom{00} \\ 0 \end{array}$$

8.24

34.  $305.13 \div 21$

$$\begin{array}{r} 14.53 \\ 21 \overline{) 305.13} \\ \underline{-21} \phantom{00} \\ 95 \phantom{00} \\ \underline{-84} \phantom{00} \\ 111 \phantom{00} \\ \underline{-105} \phantom{00} \\ 63 \phantom{00} \\ \underline{-63} \phantom{00} \\ 0 \end{array}$$

14.53

35.  $15.45 \div 3.75$

$$\begin{array}{r} 4.12 \\ 3.75 \overline{) 15.45.00} \\ \underline{-15.00} \phantom{00} \\ 456 \phantom{00} \\ \underline{-375} \phantom{00} \\ 750 \phantom{00} \\ \underline{-750} \phantom{00} \\ 0 \end{array}$$

4.12

Round to the nearest **tenths**.

36.  $54.3 \div 2.4$

$$\begin{array}{r} 22.62 \\ 2.4 \overline{) 54.3.00} \\ \underline{-48} \phantom{00} \\ 63 \phantom{00} \\ \underline{-48} \phantom{00} \\ 156 \phantom{00} \\ \underline{-144} \phantom{00} \\ 120 \phantom{00} \\ \underline{-120} \phantom{00} \\ 0 \end{array}$$

22.6

Round to the nearest **cent**.

37.  $0.819 \div 4.5$

$$\begin{array}{r} 0.182 \\ 4.5 \overline{) 8.190} \\ \underline{-45} \phantom{00} \\ 369 \phantom{00} \\ \underline{-360} \phantom{00} \\ 90 \phantom{00} \\ \underline{-90} \phantom{00} \\ 0 \end{array}$$

\$.18

Round to the nearest **thousandths**.

38.  $78.1 \div 3.2$

$$\begin{array}{r} 24.4062 \\ 3.2 \overline{) 78.1.0000} \\ \underline{-64} \phantom{0000} \\ 141 \phantom{0000} \\ \underline{-128} \phantom{0000} \\ 136 \phantom{0000} \\ \underline{-128} \phantom{0000} \\ 80 \phantom{0000} \\ \underline{-64} \phantom{0000} \\ 160 \phantom{0000} \\ \underline{-160} \phantom{0000} \\ 0 \end{array}$$

24.406

## 2.8 Scientific Notation: examples on pages 86-89

- **Tips:** An exponent is a superscript located to the upper-right of a number that tells how many times the base 10 number is repeated.

Write each in scientific notation.

39. 30,500

$3.05 \times 10^4$

40. 160,400

$1.604 \times 10^5$

41. 8,200,100

$8.2001 \times 10^6$

Write each standard form.

42.  $7.18 \times 10^3$

7,180

43.  $2.0079 \times 10^5$

200,790

44.  $4.2063 \times 10^8$

420,630,000

## 2.9 Operations in Scientific Notation: examples on pages 93-95

- **Tips:** (1) Verify the powers of 10 are the same before adding or subtracting. (2) Line up the decimals and add or subtract the two numbers.

Add or subtract.

45.  $(5.31 \times 10^3) + (4.77 \times 10^3)$

$$\begin{array}{r} 5.31 \\ + 4.77 \\ \hline 10.08 \end{array}$$

$1.008 \times 10^4$

46.  $(9.82 \times 10^7) - (3.576 \times 10^7)$

$$\begin{array}{r} 9.820 \\ - 3.576 \\ \hline 6.244 \end{array}$$

$6.244 \times 10^7$

47.  $(6.313 \times 10^5) + (8.8 \times 10^5)$

$$\begin{array}{r} 6.313 \\ + 8.800 \\ \hline 15.113 \end{array}$$

$1.5113 \times 10^6$

- **Tips:** (1) Multiply the numbers. (2) Add the exponents.

Multiply.

48.  $(4.86 \times 10^9)(1.9 \times 10^6)$

$$\begin{array}{r} 4.86 \\ \times 1.9 \\ \hline 4374 \\ + 4860 \\ \hline 9.234 \end{array}$$

$9.234 \times 10^{15}$

49.  $(2.255 \times 10^4)(3.7 \times 10^4)$

$$\begin{array}{r} 2.255 \\ \times 3.7 \\ \hline 15785 \\ + 67650 \\ \hline 83435 \end{array}$$

$8.3435 \times 10^8$

50.  $(5.572 \times 10^3)(7.4 \times 10^8)$

$$\begin{array}{r} 5.572 \\ \times 7.4 \\ \hline 22288 \\ + 390040 \\ \hline 412328 \end{array}$$

$4.12328 \times 10^{12}$