

# About Test Preparation

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*Pacemaker® Basic Mathematics* prepares students for standardized tests first by teaching content step-by-step and providing problem-solving strategies along the way. Next, frequent practice and review are presented in two forms: straight calculations and real-life word problems. In addition, students are exposed to a variety of question types, including fill-in-the-blank, multiple-choice, matching, open-ended response, using tables, and interpreting graphs. Finally, these test preparation pages provide tools for practicing and assessing cumulative knowledge—the heart of any proficiency exam.

The following reproducibles are located behind this **Test Preparation Tab**:

- Scantron Sheet
- Diagnostic Test
- Cumulative Review for Units 1 to 5
- Midterm Exam
- Final Exam

## **SCANTRON SHEET**

The Scantron Sheet can be used along with the Cumulative Unit tests as practice for taking proficiency tests. If students are familiar with this answer form, they will be more successful on standardized tests. You may wish to provide this sheet for homework when assigning the Unit Review from the Student Edition.

## **DIAGNOSTIC TEST**

The Diagnostic Test can be used at the beginning of the year—or any time—to assess students' knowledge and correctly

place them in the program. Students are required to show their work and respond on a separate sheet of paper. The answer key provides a diagnosis of the skills covered in each exercise and correlates them to the appropriate chapter or lesson in the program. To assess with a parallel test at the end of the year or another time, use the Final Exam, which is identical in form to the Diagnostic Test but uses different data.


## **CUMULATIVE UNIT REVIEWS**

These pages are similar to the Unit Reviews in the Student Edition, but they are longer. They serve as an assessment of students' cumulative understanding of Units 1 to 5 content. The questions are multiple-choice, as with standardized tests, and utilize various thought processes, such as calculations, interpreting graphs, reading a chart, or solving a multistep problem. The tests also present open-ended Critical Thinking and Challenge questions. The open-ended questions are opportunities for students to communicate mathematically. When used in conjunction with the Scantron Sheet, this multiple-choice test provides practice in taking proficiency tests.

## **EXAMS**

The Midterm covers material from Chapters 1 to 9. The Final Exam covers Chapters 1 to 18. The questions on both tests are based on the Chapter Reviews. The tests are arranged in chapter sequence. The language used in the direction lines mirrors that of the Student Edition. Therefore, students should be well prepared to handle the tests. This should set the stage for overall success.

# Scantron Sheet

PLEASE NOTE
• Use a No. 2 Pencil Only 
• Example: (A) ● (C) (D)
• Erase changes COMPLETELY.

Mark one answer for each question.

1. (A) (B) (C) (D)
2. (A) (B) (C) (D)
3. (A) (B) (C) (D)
4. (A) (B) (C) (D)
5. (A) (B) (C) (D)
6. (A) (B) (C) (D)
7. (A) (B) (C) (D)
8. (A) (B) (C) (D)
9. (A) (B) (C) (D)
10. (A) (B) (C) (D)
11. (A) (B) (C) (D)
12. (A) (B) (C) (D)
13. (A) (B) (C) (D)
14. (A) (B) (C) (D)
15. (A) (B) (C) (D)

## Critical Thinking

## Challenge

## Diagnostic Test • Chapters 1–18

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- Write *ninety-three thousand, two hundred five* using digits. \_\_\_\_\_
- Write *103,450* using words. \_\_\_\_\_
- Order these numbers from least to greatest:  
3,451; 12,642; 1,999
- Round 56,715 to the nearest thousand.

### Add or subtract.

$$\begin{array}{r} 5. \quad 33 \\ \quad 42 \\ + \underline{21} \end{array}$$

$$\begin{array}{r} 6. \quad 375 \\ \quad 4,572 \\ + \underline{8,907} \end{array}$$

$$\begin{array}{r} 7. \quad 781 \\ \quad \underline{- 540} \end{array}$$

$$\begin{array}{r} 8. \quad 3,167 \\ \quad \underline{- 2,948} \end{array}$$

$$\begin{array}{r} 9. \quad 4,000 \\ \quad \underline{- 1,375} \end{array}$$

### Solve.

- 10.** *News Today* newspaper has a circulation of 789,198. *The Ramsey Gazette* newspaper has a circulation of 205,233. What is the total circulation of both newspapers?

- 11.** A survey showed there were 811,717 male drivers and 751,854 female drivers who were 16 years old. How many more male drivers than female drivers were there?

### Multiply or divide.

$$\begin{array}{r} 12. \quad 413 \\ \times \quad 32 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 362 \\ \times \quad 4 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 735 \\ \times \quad 87 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 506 \\ \times \quad 38 \\ \hline \end{array}$$

$$16. \quad 63 \div 9 =$$


$$17. \quad 38 \div 7 =$$

$$18. \quad 640 \div 2 =$$

$$19. \quad 18 \overline{)774}$$

$$20. \quad 7 \overline{)5,663}$$

$$21. \quad 37 \overline{)1,867}$$

(Go on to next page) 

## Diagnostic Test • Chapters 1–18 (continued)

Solve.

22. 35 bottles can be packed in one box. Tim has to pack 2,205 bottles. How many boxes will he need?
23. The length of one block is 4,321 centimeters. What would be the length of 1,000 of these blocks in meters if they were placed end to end?
24. Find the greatest common factor of 24 and 56.
25. Find the least common multiple of 6 and 16.
26. Reduce  $\frac{12}{15}$  to lowest terms.
27. Order these fractions from least to greatest:  $\frac{3}{4}$ ,  $\frac{2}{3}$ ,  $\frac{5}{8}$ .
28. Change  $2\frac{3}{4}$  to an improper fraction.


Multiply or divide.

29.  $\frac{4}{9} \times \frac{9}{13} =$
30.  $42 \times \frac{4}{7} =$
31.  $6\frac{1}{2} \times 2\frac{4}{9} =$
32.  $\frac{7}{11} \div \frac{2}{11} =$
33.  $14 \div \frac{1}{5} =$
34.  $4\frac{3}{4} \div 1\frac{2}{5} =$

Add or subtract.

35.  $\frac{4}{13} + \frac{5}{13} =$
36.  $\frac{7}{9} - \frac{5}{9} =$
37.  $24\frac{2}{7} - 9\frac{5}{7} =$
38. 
$$\begin{array}{r} 8 \\ - \frac{3}{5} \\ \hline \end{array}$$
39. 
$$\begin{array}{r} \frac{6}{9} \\ + \frac{5}{6} \\ \hline \end{array}$$
40. 
$$\begin{array}{r} 8\frac{1}{2} \\ - 3\frac{3}{5} \\ \hline \end{array}$$

41. Write *six and five thousandths* using digits.
42. Which number is greater: 29.53 or 29.093?

(Go on to next page) 

**Diagnostic Test • Chapters 1–18 (continued)**

Add or subtract.

**43.**  $5.888 + 7.23 =$

**44.**  $6 + 4.9 + .325 =$

**45.**  $23.08 - 5.29 =$

**46.**  $4 - 3.027 =$

Multiply or divide.

**47.** 
$$\begin{array}{r} 2.9 \\ \times 3 \\ \hline \end{array}$$

**48.** 
$$\begin{array}{r} .83 \\ \times .007 \\ \hline \end{array}$$

**49.** 
$$\begin{array}{r} 12.5 \\ \times .486 \\ \hline \end{array}$$

**50.**  $18 \overline{)16.4}$

**51.**  $.18 \overline{)5526}$

**52.**  $.07 \overline{)56}$

**53.**  $3.7 \overline{)30.192}$

Complete the chart.

	Percent	Fraction	Decimal
<b>54.</b>	3%		
<b>55.</b>		$3\frac{8}{25}$	
<b>56.</b>			5.25

Solve.

**57.** What is 32% of 45?

**58.** What percent of 30 is 12?

**59.** Tia's base salary is \$125 per week plus commission. Her commission is 20%. Her sales this week totaled \$15,250. What is Tia's gross salary this week?

**60.** A book originally priced at \$35 is on sale for \$28. What is the percent decrease?

**61.** Write the ratio of all vowels to all consonants in the word PARALLELOGRAM.


**62.** The scale on a map is 1 in. = 15 mi. A line on the map is 8 inches. How many miles does the line represent?

**63.** If 4 boxes hold 18 pounds, how many pounds will 20 boxes hold?

**64.** In a pictograph,  $\text{Æ} = 8$  tents. How many  $\text{Æ}$ s are needed to show 28 tents?

**65.** Find the mean of 8, 7, 9, 7, 11, 7, 7.

**66.** What is the probability of choosing an A from a bag containing the following tiles: five As, six Bs, and three Cs?

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**Diagnostic Test • Chapters 1–18 (continued)**

**67.** Find the elapsed time from 3:25 A.M. to 4:09 P.M.

**Change each measurement.**

**68.** 3 yards = \_\_\_ feet      **69.** 72 inches = \_\_\_ yards      **70.** 64 ounces = \_\_\_ pounds

**71.** 2.3 tons = \_\_\_ pounds      **72.** 4 gallons = \_\_\_ quarts      **73.** 3 quarts = \_\_\_ pints

**74.** 86 meters = \_\_\_ centimeters      **75.** 420 grams = \_\_\_ kilograms      **76.** .5 liter = \_\_\_ deciliters

**77.** Find the perimeter of a rectangle whose length is 9 in. and whose width is 12 in.

**78.** Find the area of a parallelogram whose base is 40 cm and whose height is 12 cm.

**79.** Find the circumference of a circle with a diameter of 12 m.

**80.** Find the volume of a cylinder with a radius of 7 ft and a height of 8 ft.

**Add, subtract, multiply, or divide.**

**81.**  $-8 + -5 =$

**82.**  $-13 + +7 =$

**83.**  $+5 - +2 =$

**84.**  $-11 - +5 =$

**85.**  $-7 - -8 =$

**86.**  $-5 \times -6 =$

**87.**  $-9 \times +3 =$

**88.**  $+64 \div -8 =$

**89.**  $-100 \div -10 =$

**90.**  $20 \div (4 + 6) =$

**91.**  $7 - 2 + 34 =$

**92.**  $5 + 6 \times 3 =$

**Solve.**

**93.**  $5 + x = 46$

**94.**  $x - 13 = 66$

**95.**  $4x = 32$

**96.**  $\frac{x}{5} = 25$

**97.**  $6x - 4 = 14$

**98.**  $\frac{x}{3} + 2 = 6$

**99.** A car traveling at 55 mph goes 110 miles. How long does the trip take?

**100.** A train goes 70 mph for 3 hours. How far does it travel?



## Cumulative Review • Unit 1

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Choose the letter for the correct answer.

Use the table to answer Questions 1–3.

Plastic Products	
Type	Amount Left
Spoons	1,350
Forks	1,537
Knives	473
Straws	3,485

- Which type of plastic product has an even number next to it?
  - Spoons
  - Forks
  - Knives
  - Straws
- Which type of plastic product has three thousand, four hundred eighty-five left?
  - Spoons
  - Forks
  - Knives
  - Straws
- Nick reorders plastic products when the amount left is less than 1,500. Which plastic products need to be reordered?
  - Forks and straws
  - Spoons and knives
  - Knives
  - Spoons, knives, and straws
- Laura was assigned 47 pages to read in history for tomorrow. This morning, she read 23 pages. How many more pages does she need to read?
  - 13 pages
  - 23 pages
  - 24 pages
  - 70 pages
- Doreen ate 1,350 calories for breakfast, 1,099 calories for lunch, and 1,149 calories for dinner. Estimate to the nearest hundred the number of calories that she ate in the three meals.
  - 3,500 calories
  - 3,600 calories
  - 3,000 calories
  - 3,900 calories
- Dwayne keeps track of all his quiz grades from math class. So far, he has a 98, a 100, an 80, a 75, and an 82. Which list of quiz grades is in order from the least to the greatest?
  - 75, 82, 80, 98, 100
  - 100, 98, 82, 80, 75
  - 98, 82, 100, 80, 75
  - 75, 80, 82, 98, 100
- There are 11 boxes. Each box was packed with 45 notebooks. How many notebooks are there in all?
  - 56 notebooks
  - 34 notebooks
  - 495 notebooks
  - 90 notebooks

## Cumulative Review • Unit 1 (continued)

8. There are 28 stamps on a roll. Maria has 196 stamps. How many rolls does she have?
- A. 7 rolls
  - B. 168 rolls
  - C. 224 rolls
  - D. 8 rolls
9. Janice has a paper route. She earned \$275 dollars a month for 4 months in the summer. During the rest of the year, she earned \$1,280. How much did she earn in 1 year?
- A. \$1,555
  - B. \$180
  - C. \$2,380
  - D. \$1,559
10. In September, Shawn bought 300 pieces of notebook paper. By December, he had used 27 pencils and 212 pieces of notebook paper. How many pieces of notebook paper does he have left?
- A. 512 pieces of paper
  - B. 273 pieces of paper
  - C. 61 pieces of paper
  - D. 88 pieces of paper
11. Jaime has basketball practice every fifth day of the month. He has band practice every third day of the month. He started this new schedule on October 1. What is the first day he will have both basketball and band practice?
- A. October 30
  - B. October 21
  - C. October 15
  - D. October 25
12. How many factors does the number 64 have?
- A. 8
  - B. 6
  - C. 7
  - D. 9
13. There are 24 students in Mr. Dolce's math class. He wants to split the class into groups. He wants each group to have the same number of students. Which of the choices would work?
- A. 4 groups of 4 students
  - B. 6 groups of 4 students
  - C. 8 groups of 5 students
  - D. 12 groups of 3 students
14. The distance from the top of a pole to where Larry is standing is  $\sqrt{49}$  feet. Which measurement is the same as this?
- A. 7 feet
  - B. 8 feet
  - C. 14 feet
  - D. 49 feet
15. Which of the following is the prime factorization of 48?
- A.  $6 \times 8$
  - B.  $2 \times 2 \times 2 \times 2 \times 3$
  - C.  $2 \times 4 \times 3 \times 2$
  - D.  $2 \times 3 \times 8$

### Critical Thinking

Ben needs to buy 496 stamps. Stamps can be bought in three ways:

Choice A: 32 stamps on a sheet

Choice B: 18 stamps in a book

Choice C: 100 stamps on a roll

He wants to have the fewest number of stamps left over. Which choice should he buy? How many stamps will be left over?

**CHALLENGE** Using the choices above, list all the different ways you can buy exactly 320 stamps.


## Cumulative Review • Unit 2

Choose the letter for the correct answer.

Use the table to answer Questions 1 and 2.

Music CDs Sold in 1 Day	
Type of CDs	Number Sold
Rap	8
Country	10
Classical	5
Rock	7

- Which fraction of all the CDs sold were rock CDs?
  - $\frac{7}{30}$
  - $\frac{5}{7}$
  - $\frac{7}{40}$
  - $\frac{7}{10}$
- Which fraction of all the CDs sold were country CDs?
  - $\frac{4}{15}$
  - $\frac{1}{6}$
  - $\frac{1}{3}$
  - None of the above
- Which sum is least?
  - $\frac{1}{2} + \frac{1}{10}$
  - $\frac{2}{3} + \frac{1}{10}$
  - $\frac{1}{2} + \frac{2}{3}$
  - $\frac{1}{2} + \frac{1}{3}$
- Rhonda, Linda, and Kayla put oil in their cars. Rhonda's car needed  $\frac{5}{6}$  of a quart. Linda's car needed  $\frac{2}{3}$  of a quart. Kayla's car needed  $\frac{3}{8}$  of a quart. Which list shows how much oil each owner needed from least to greatest?
  - Rhonda, Linda, Kayla
  - Linda, Kayla, Rhonda
  - Kayla, Linda, Rhonda
  - Linda, Rhonda, Kayla
- Which improper fraction is equivalent to  $2\frac{1}{8}$ ?
  - $\frac{10}{8}$
  - $\frac{11}{8}$
  - $\frac{17}{8}$
  - $\frac{21}{8}$
- Gordon bought  $3\frac{1}{5}$  pounds of fish. Each pound is 16 ounces. How many ounces did he buy?
  - $\frac{1}{5}$  ounce
  - $19\frac{1}{5}$  ounces
  - 51 ounces
  - $51\frac{1}{5}$  ounces
- A recipe for cookies calls for  $\frac{1}{3}$  cup of butter. One tablespoon equals  $\frac{1}{16}$  of a cup. How many tablespoons of butter are used to make the cookies?
  - $\frac{1}{48}$  tablespoon
  - $\frac{19}{48}$  tablespoon
  - $5\frac{1}{3}$  tablespoons
  - 48 tablespoons

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## Cumulative Review • Unit 2 (continued)

8. A recipe for beef-vegetable soup calls for  $2\frac{3}{4}$  cups of beef broth. How much broth would you use to make  $\frac{3}{4}$  of the amount of soup in the original recipe?
- A. 2 cups  
B.  $2\frac{1}{16}$  cups  
C.  $3\frac{1}{2}$  cups  
D.  $3\frac{2}{3}$  cups
9. Find  $3 \div \frac{3}{7}$ .
- A.  $1\frac{2}{7}$   
B.  $\frac{1}{7}$   
C. 7  
D. None of the above
10. One book measures  $1\frac{5}{6}$  inches thick. How many books this size will fit on a shelf that is 24 inches wide?
- A. 13 books  
B. 14 books  
C. 25 books  
D. 44 books
11. Toni bought  $1\frac{5}{8}$  yards of red fabric. Her mother bought her  $1\frac{1}{2}$  yards more of the same red fabric. How much red fabric does Toni have in all?
- A.  $2\frac{3}{5}$  yards  
B.  $1\frac{1}{8}$  yards  
C.  $2\frac{1}{2}$  yards  
D.  $3\frac{1}{8}$  yards
12. Barb bought  $7\frac{2}{5}$  feet of string. She used  $5\frac{3}{5}$  feet of the string to tie up a plant. How many feet of string are left?
- A.  $1\frac{4}{5}$  feet  
B.  $2\frac{1}{5}$  feet  
C.  $2\frac{4}{5}$  feet  
D. 13 feet
13. On Friday, Matt worked  $4\frac{3}{4}$  hours. On Saturday, he worked  $6\frac{3}{8}$  hours. How many more hours did he work on Saturday than on Friday?
- A.  $10\frac{1}{2}$  hours  
B. 10 hours  
C.  $11\frac{1}{8}$  hours  
D.  $1\frac{5}{8}$  hours
14. Pam and her three sisters shared  $7\frac{1}{2}$  pounds of chocolates equally. Of her  $\frac{1}{4}$  share, Pam ate  $\frac{1}{2}$  pound. How many pounds does she have left?
- A.  $1\frac{3}{8}$  pounds  
B.  $1\frac{7}{8}$  pounds  
C. 2 pounds  
D.  $2\frac{3}{8}$  pounds
15. Which of the terms will complete the pattern:  
 $2\frac{1}{2}$ , \_\_\_\_\_,  $5\frac{1}{2}$ , \_\_\_\_\_,  $8\frac{1}{2}$
- A. 4 and 7  
B.  $3\frac{1}{2}$  and  $6\frac{1}{2}$   
C. 4 and  $6\frac{1}{2}$   
D. 3 and 6

### Critical Thinking

Use the table from Questions 1 and 2. Tawaka bought  $\frac{1}{5}$  of the classical CDs that were sold and  $\frac{1}{4}$  of the rap CDs that were sold. Is her total CD purchase more or less than  $\frac{1}{2}$  of the total number of CDs sold?

**CHALLENGE** How many more CDs would she have had to buy so that  $\frac{1}{2}$  of all the CDs were sold to her?

## Cumulative Review • Unit 3

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Choose the letter for the correct answer.

Use the table to answer Questions 1 and 2.

Standing Long Jump Results	
Kieran	1.3 m
David	1.15 m
Nancy	1.43 m
Matthew	1.8 m
Hector	.95 m

- Who jumped the greatest distance?
  - Kieran
  - Matthew
  - Nancy
  - Hector
- How much farther did Nancy jump than Kieran?
  - .13 m
  - 1.13 m
  - 1.4 m
  - 2.73 m
- Pencils cost \$.35 each. Jill bought 15 pencils. How much did she spend?
  - \$4.05
  - \$4.50
  - \$5.25
  - \$5.50
- Paul has a board that is 1.25 meters long. He needs to cut the board into 5 equal pieces. How long is each piece?
  - 6.25 meters
  - 3.75 meters
  - .25 meter
  - 1 meter
- Katrina bought 7 pencils and 3 pens. What percent of her purchase is pencils?
  - 30%
  - 42.9%
  - 70%
  - 233%
- 12% of Victor's salary goes to taxes. Victor earns \$250 per week. How much of his earnings goes to taxes?
  - \$3.00
  - \$20.83
  - \$30.00
  - \$208.33
- Monica bought 2 shirts that cost \$18.95 each. Sales tax is 5%. What was Monica's total cost?
  - \$19.90
  - \$36.01
  - \$37.90
  - \$39.80
- The price of bananas is \$1.80 for 4 pounds. What is the cost of 3 pounds of bananas?
  - \$.45
  - \$.60
  - \$1.25
  - \$1.35
- A \$25 shirt was on sale for 30% off. What was the sale price of the shirt?
  - \$15.00
  - \$17.50
  - \$22.00
  - \$24.25

## Cumulative Review • Unit 3 (continued)

- 10.** The scale is 1 inch = 25 miles on a map. The distance between two cities on the map is 5 inches. How many miles apart are the two cities?
- A. 5 miles
  - B. 20 miles
  - C. 30 miles
  - D. 125 miles
- 11.** Craig buys 5 notebooks at \$.79 each and a binder for \$2.29. How much change from \$10 does he receive?
- A. \$1.92
  - B. \$3.76
  - C. \$6.05
  - D. \$6.92
- 12.** A graphing calculator cost \$125 when it first came out. It now costs \$85. What is the percent decrease?
- A. 25%
  - B. 32%
  - C. 40%
  - D. 47%
- 13.** Nikki's base salary is \$750 per week. She also earns a 15% commission on her sales. Last week, her sales totaled \$1,085. How much was her gross salary for last week?
- A. \$72.33
  - B. \$912.75
  - C. \$1,627.50
  - D. \$16,275
- 14.** A kite, originally priced at \$20, is on sale for \$16. What is the percent of the discount?
- A. 20%
  - B. 25%
  - C. 80%
  - D. 123%
- 15.** There are 12 students in Mr. Miller's class who come to school by bus. This is 40% of his class. How many students are in his class?
- A. 20
  - B. 28
  - C. 30
  - D. 32

### Critical Thinking

Hillary works as a salesperson in an electronics store. She can choose between two different pay options. Hillary works 40 hours a week.

Plan A: \$12.75 per hour

Plan B: \$8.50 per hour plus 5% commission

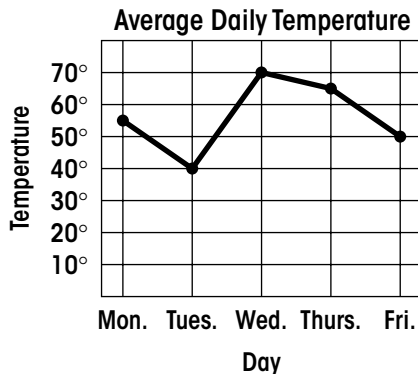
Which plan should she choose if she thinks she can sell \$1,500 in electronics each week?

**CHALLENGE** What is the least amount of sales she could make to earn more with Plan B than with Plan A?

## Cumulative Review • Unit 4

Choose the letter for the correct answer.

Use the graph to answer Questions 1 and 2.



- Which days had a temperature lower than  $65^\circ$ ?
  - Tuesday and Wednesday
  - Monday and Wednesday
  - Monday, Thursday, and Friday
  - None of the above
- What is the difference between the temperature for Monday and the temperature for Thursday?
  - $95^\circ$
  - $15^\circ$
  - $10^\circ$
  - $5^\circ$
- Find Gil's mean quiz score for math class. His quiz scores for math class are: 75, 95, 80, 73, 81, and 82.
  - 81
  - 68
  - 82
  - 98
- Altogether Shelly bought 10.5 meters of orange, red, and yellow string. There were 3,000 millimeters of red string and 5,500 millimeters of yellow string. How many millimeters of string were orange?
  - 19,000 millimeters
  - 8,000 millimeters
  - 8,489.5 millimeters
  - 2,000 millimeters
- Find the area of a triangle with a height = 8 m and a base = 5 m.
  - 40 sq m
  - 20 sq m
  - 26 sq m
  - 80 sq m
- Ken takes 500 milligrams of vitamin C every day. How many grams is this?
  - .5 gram
  - 5 grams
  - 50 grams
  - 5,000 grams
- After work, Howard ran some errands. He spent  $\frac{3}{4}$  hour in the library, 25 minutes in the bakery, and 55 minutes in the food store. How long did Howard's errands take him?
  - 1 hour and 20 minutes
  - 2 hours and 5 minutes
  - 2 hours and 10 minutes
  - 3 hours

## Cumulative Review • Unit 4 (continued)

8. Renee started school at 7:25 A.M. School ended at 3:30 P.M. Find the elapsed time.
- A. 4 hours 5 minutes
  - B. 8 hours 5 minutes
  - C. 9 hours
  - D. 10 hours 55 minutes
9. A restaurant used 19 pints of tomato sauce to make lasagna. How many quarts is this?
- A. 4.75 quarts
  - B. 9.5 quarts
  - C. 38 quarts
  - D. 76 quarts
10. The temperature in the morning was  $38^\circ$ . During the day, it dropped  $19^\circ$ . What was the temperature at the end of the day?
- A.  $9^\circ$
  - B.  $19^\circ$
  - C.  $21^\circ$
  - D.  $57^\circ$
11. There are 3 white cubes, 5 red cubes, and 2 green cubes in a bag. What is the probability of choosing a green cube from the bag?
- A.  $\frac{1}{5}$
  - B.  $\frac{3}{10}$
  - C.  $\frac{1}{4}$
  - D.  $\frac{1}{2}$
12. Victor's test scores were 72, 85, 88, 72, 95, and 89. What is his median score?
- A. 72
  - B. 85
  - C. 86.5
  - D. 88
13. A picture measures 12 inches by 40 inches. There is a wood frame around the picture that is 3 inches wide. What is the area of the wood frame?
- A. 165 sq in.
  - B. 348 sq in.
  - C. 480 sq in.
  - D. 1,440 sq in.
14. Raissa's house is circular. The diameter of her house is 20 feet. What is the area of Raissa's house?
- A. 31.4 sq ft
  - B. 62.8 sq ft
  - C. 314 sq ft
  - D. 1,256 sq ft
15. Mike drew an isosceles triangle with two angles each measuring  $36^\circ$ . Which is the measure of the third angle in his triangle?
- A.  $36^\circ$
  - B.  $72^\circ$
  - C.  $108^\circ$
  - D.  $144^\circ$

### Critical Thinking

The volume of a cube is 64 cubic meters. All sides of the cube have whole-number measures. What are the possible dimensions of this cube?

**CHALLENGE** How does the volume of this cube change when the lengths of all sides are doubled?

## Cumulative Review • Unit 5

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Choose the letter for the correct answer.

Use the table to answer Questions 1–3.

Weekend Low Temperatures	
Day	Temperature
Friday	$-3^{\circ}$
Saturday	$17^{\circ}$
Sunday	$-8^{\circ}$

- How much warmer was Saturday than Sunday?
  - $-25^{\circ}$
  - $-9^{\circ}$
  - $9^{\circ}$
  - $25^{\circ}$
- If Friday's temperature had been  $5^{\circ}$  colder, what would its low temperature have been?
  - $-8^{\circ}\text{F}$
  - $-2^{\circ}\text{F}$
  - $2^{\circ}\text{F}$
  - $8^{\circ}\text{F}$
- Find the coldest and warmest temperatures in the table. What is the difference between these temperatures?
  - $9^{\circ}\text{F}$
  - $14^{\circ}\text{F}$
  - $20^{\circ}\text{F}$
  - $25^{\circ}\text{F}$
- Kelly is playing a game in which red cards are worth  $-7$  points and black cards are worth 2 points. Kelly has 5 red cards and 2 black cards. Find the value of Kelly's cards.
  - $-31$  points
  - $-14$  points
  - 14 points
  - 31 points
- The temperature was at  $3^{\circ}\text{F}$ . In three hours, it fell to  $-18^{\circ}\text{F}$ . If it fell the same amount each hour, what was the temperature after the first hour?
  - $-18^{\circ}\text{F}$
  - $-12^{\circ}\text{F}$
  - $-4^{\circ}\text{F}$
  - $4^{\circ}\text{F}$
- Patty is 9 years older than Bill. Bill is  $y$  years old. Patty is 12 years old. Which equation shows this relationship?
  - $y - 9 = 12$
  - $9y = 12$
  - $y \div 9 = 12$
  - $y + 9 = 12$
- An elevator began on the third floor, went up 2 floors, and then down 4 floors. Which direction, and how many floors, should it move so that its next stop is the second floor?
  - down 2 floors
  - down 1 floor
  - up 1 floor
  - up 2 floors

## Cumulative Review • Unit 5 (continued)

8. Which expression simplifies to 6?
- A.  $3 \times 8 - 4$
  - B.  $2(8 - 5)$
  - C.  $(8 - 5) - 3$
  - D.  $2 \times 8 - 5$
9. A stock in the stock market was worth 4 points when it first came on the market. It then dropped 3 points, rose 2 points, and then dropped 2 points by the end of the day. Where did the stock end?
- A. 1 point
  - B. 11 points
  - C. 5 points
  - D. -1 point
10. Which is NOT true?
- A.  $-12 \div -2 = +6$
  - B.  $-4 - -9 = +5$
  - C.  $-4 + -9 = -13$
  - D.  $-4 \times -9 = +32$
11. A train went 576 miles at 72 mph. How long did the trip take?
- A. .125 hour
  - B. 8 hours
  - C. 80 hours
  - D. 504 hours
12. Which is the solution to the equation  $\frac{x}{2} - 4 = 12$ ?
- A.  $x = 4$
  - B.  $x = 8$
  - C.  $x = 16$
  - D.  $x = 32$
13. Linda rented a big-screen television for \$55. She paid \$5 per day plus a rental fee of \$25. For how many days did she rent the big-screen television?
- A. 2 days
  - B. 6 days
  - C. 16 days
  - D. 25 days
14. Chen drove 413 miles in 7 hours. What was his average rate of speed?
- A. 59 mph
  - B. 62 mph
  - C. 406 mph
  - D. 420 mph
15. Which equation has a solution of  $x = -2$ ?
- A.  $3x = 6$
  - B.  $x + 4 = 7$
  - C.  $4x - 5 = -9$
  - D.  $4x - 2 = -10$

### Critical Thinking

Use the table from Questions 1–3. The temperatures on the following Monday, Tuesday, and Wednesday were all below zero. What could these temperatures be so that the sum of the six temperatures is zero?

**CHALLENGE** Using your temperatures for Monday, Tuesday, and Wednesday, find the average for the six days. What would the temperature have to be on Thursday to make the average temperature for the seven days below zero?

## Midterm • Chapters 1–9

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1. Write *sixty-five thousand, eight hundred five* using digits.
2. Write *203,000,011* in words.
3. Order these numbers from least to greatest:  
45,630; 4,899; 124,000
4. Round 823,471 to the nearest thousand.

Add or subtract.

$$\begin{array}{r} 5. \quad 34 \\ \quad 13 \\ + \underline{52} \end{array}$$

$$\begin{array}{r} 6. \quad 108 \\ \quad 3,573 \\ + \underline{5,369} \end{array}$$

$$\begin{array}{r} 7. \quad 678 \\ \quad \underline{- 547} \end{array}$$

$$\begin{array}{r} 8. \quad 5,421 \\ \quad \underline{- 1,719} \end{array}$$

$$\begin{array}{r} 9. \quad 8,000 \\ \quad \underline{- 3,125} \end{array}$$

Solve.

10. One computer file uses 15,361 bytes. Another file uses 53,602 bytes. How many bytes do they use altogether?
11. Mickey has 5,250 straws to put into boxes. He has already put 1,725 in a box. How many more does he still need to put into boxes?

Multiply or divide.

$$\begin{array}{r} 12. \quad 621 \\ \quad \times 43 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 851 \\ \quad \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 492 \\ \quad \times 76 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 702 \\ \quad \times 82 \\ \hline \end{array}$$

$$16. \quad 36 \div 9 =$$


$$17. \quad 61 \div 7 =$$

$$18. \quad 840 \div 4 =$$

$$19. \quad 12 \overline{)492}$$

$$20. \quad 7 \overline{)5,656}$$

$$21. \quad 34 \overline{)1,365}$$

(Go on to next page) 

## Midterm • Chapters 1–9 (continued)

Solve.

22. 52 seeds are planted in each row. Sue planted 1,352 seeds. How many rows did she plant?

23. Tyra sold 1,000 boxes of paper. Each box of paper contains 1,300 sheets of paper. How many sheets of paper did he sell?

24. Find the greatest common factor of 15 and 45.

25. Reduce  $\frac{15}{18}$  to lowest terms.

26. Find the least common multiple of 9 and 15.

27. Order these fractions from least to greatest:  $\frac{5}{6}$ ,  $\frac{3}{5}$ ,  $\frac{7}{10}$

28. Change  $3\frac{2}{5}$  to an improper fraction.

Multiply or divide.

29.  $\frac{2}{3} \times \frac{3}{7} =$

30.  $81 \times \frac{4}{9} =$

31.  $4\frac{3}{5} \times 6\frac{3}{4} =$

32.  $\frac{5}{7} \div \frac{3}{7} =$

33.  $11 \div \frac{2}{9} =$

34.  $5\frac{7}{9} \div 2\frac{3}{4} =$

Add or subtract.

35.  $\frac{5}{9} + \frac{2}{9} =$

36.  $\frac{5}{6} - \frac{1}{6} =$

37.  $5\frac{3}{8} - 2\frac{5}{8} =$

38. 
$$\begin{array}{r} 9 \\ - \frac{4}{5} \\ \hline \end{array}$$

39. 
$$\begin{array}{r} \frac{4}{5} \\ + \frac{3}{8} \\ \hline \end{array}$$

40. 
$$\begin{array}{r} 3\frac{1}{3} \\ - 2\frac{5}{6} \\ \hline \end{array}$$

## Final Exam • Chapters 1–18

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1. Write *four hundred three thousand, one hundred twenty-five* using digits.
2. Write *45,119* using words.
3. Order these numbers from least to greatest:  
115,832; 45,009; 4,999
4. Round 874,970 to the nearest hundred.

Add or subtract.

$$\begin{array}{r} 5. \quad 12 \\ \quad 56 \\ + \quad 30 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 452 \\ \quad 6,739 \\ + \quad 5,851 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 945 \\ \quad \underline{- 632} \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 5,632 \\ \quad \underline{- 3,719} \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 7,000 \\ \quad \underline{- 5,978} \\ \hline \end{array}$$

Solve.

- 10.** One fast-food restaurant claims to have sold 39,562 sandwiches. Another claims to have sold 25,938 sandwiches. How many sandwiches is that altogether?

- 11.** Lyle's first concert was seen by 5,682 people. His second was seen by 4,893 people. How many more people saw his first concert than his second?

Multiply or divide.

$$\begin{array}{r} 12. \quad 532 \\ \quad \times 13 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 673 \\ \quad \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 572 \\ \quad \times 93 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 208 \\ \quad \times 57 \\ \hline \end{array}$$

**16.**  $45 \div 5 =$


**17.**  $52 \div 8 =$

**18.**  $930 \div 3 =$

**19.**  $16 \overline{)448}$

**20.**  $5 \overline{)4,530}$

**21.**  $46 \overline{)2,783}$

(Go on to next page) 

## Final Exam • Chapters 1–18 (continued)

Solve.

- 22.** 32 people can be seated in each row of the auditorium. 1,440 people are attending a debate being held at the auditorium. How many rows will be filled?
- 23.** 100 people are employed at the packing plant. They each worked 1,960 hours last year. How many hours is this altogether?
- 24.** Find the greatest common factor of 28 and 36.
- 25.** Find the least common multiple of 4 and 14.
- 26.** Reduce  $\frac{18}{24}$  to lowest terms.
- 27.** Order these fractions from least to greatest:  $\frac{1}{9}$ ,  $\frac{3}{4}$ ,  $\frac{7}{12}$ .
- 28.** Change  $5\frac{1}{3}$  to an improper fraction.


Multiply or divide.

- 29.**  $\frac{3}{4} \times \frac{4}{15} =$
- 30.**  $45 \times \frac{4}{5} =$
- 31.**  $5\frac{1}{4} \times 3\frac{5}{7} =$
- 32.**  $\frac{3}{10} \div \frac{1}{10} =$
- 33.**  $22 \div \frac{2}{3} =$
- 34.**  $6\frac{3}{5} \div 4\frac{2}{7} =$

Add or subtract.

- 35.**  $\frac{4}{7} + \frac{2}{7} =$
- 36.**  $\frac{8}{12} - \frac{5}{12} =$
- 37.**  $14\frac{2}{5} - 9\frac{3}{5} =$
- 38.** 
$$\begin{array}{r} 4 \\ - \frac{7}{8} \\ \hline \end{array}$$
- 39.** 
$$\begin{array}{r} \frac{2}{5} \\ + \frac{4}{7} \\ \hline \end{array}$$
- 40.** 
$$\begin{array}{r} 7\frac{2}{3} \\ - 6\frac{5}{6} \\ \hline \end{array}$$

- 41.** Write *thirty-two thousandths* using digits.
- 42.** Which number is greater: 16.809 or 16.89?

(Go on to next page) 

**Final Exam • Chapters 1–18 (continued)**

Add or subtract.

**43.**  $9.763 + 8.31 =$

**44.**  $9 + 3.5 + .746 =$

**45.**  $15.09 - 5.73 =$

**46.**  $9 - 6.048 =$

Multiply or divide.

**47.** 
$$\begin{array}{r} 1.8 \\ \times 4 \\ \hline \end{array}$$

**48.** 
$$\begin{array}{r} .74 \\ \times .009 \\ \hline \end{array}$$

**49.** 
$$\begin{array}{r} 16.03 \\ \times .185 \\ \hline \end{array}$$

**50.**  $12 \overline{)18.2}$

**51.**  $.16 \overline{)3312}$

**52.**  $.09 \overline{)4}$

**53.**  $5.7 \overline{)25.023}$

Complete the chart.

	Percent	Fraction	Decimal
<b>54.</b>	8%		
<b>55.</b>		$1\frac{3}{5}$	
<b>56.</b>			3.8

Solve.

**57.** What is 25% of 78?

**58.** What percent of 50 is 22?



**59.** Ed's base salary is \$450 per week. His commission is 15%. His sales this week totaled \$5,375. What is Ed's gross salary this week?

**60.** A vase originally priced at \$60 is on sale for \$45. What is the percent decrease.

**61.** Write the ratio of all vowels to all consonants in the word PROPORTIONS.


**62.** If 3 boxes of detergent cost \$7, how much will 9 boxes of detergent cost?

**63.** The scale on a map is 1 in. = 5 mi. A line on the map is 8 inches. How many miles does the line represent?

**64.** In a pictograph,  = 20 pounds. How many  are needed to show 50 pounds?

**65.** Find the mean of 6, 4, 5, 4, 10, 4, 6, 1.

**66.** What is the probability of choosing an A from a bag containing the following tiles: three As, four Bs, and five Cs?

(Go on to next page) 

**Final Exam • Chapters 1–18 (continued)**

**67.** Find the elapsed time from 1:15 A.M. to 5:16 A.M.

**Change each measurement.**

**68.** 8 yards = \_\_\_ feet      **69.** 24 inches = \_\_\_ yard      **70.** 48 ounces = \_\_\_ pounds

**71.** 1.2 tons = \_\_\_ pounds      **72.** 5 gallons = \_\_\_ quarts      **73.** 4 quarts = \_\_\_ pints

**74.** .34 meter = \_\_\_ centimeters      **75.** 230 grams = \_\_\_ kilograms      **76.** .9 liter = \_\_\_ deciliters

**77.** Find the perimeter of a rectangle whose length is 5 cm and whose width is 4 cm.

**78.** Find the area of a parallelogram whose base is 16 yd and whose height is 4 yd.

**79.** Find the circumference of a circle with a diameter of 10 in.

**80.** Find the volume of a cylinder with a radius of 5 m and height of 6 m.

**Add, subtract, multiply, or divide.**

**81.**  $-6 + -3 =$

**82.**  $-15 + +9 =$

**83.**  $+9 - +3 =$

**84.**  $-7 - +2 =$

**85.**  $-4 - -5 =$

**86.**  $-3 \times -5 =$

**87.**  $-7 \times +9 =$

**88.**  $+36 \div -9 =$

**89.**  $-54 \div -6 =$

**90.**  $30 - (7 \times 3) =$

**91.**  $3(8 - 1) =$

**92.**  $7 - 6 + 2 =$

**Solve.**

**93.**  $8 + x = 47$

**94.**  $x - 11 = 65$

**95.**  $4x = 12$

**96.**  $\frac{x}{5} = 20$

**97.**  $6x - 3 = 9$

**98.**  $\frac{x}{3} + 4 = 6$

**99.** A car traveling at 50 mph goes 175 miles. How long does the trip take?

**100.** A train travels 65 mph for 4 hours. How far does it travel?



**TEST PREPARATION****Diagnostic Test • Chapters 1–18**

<b>Answer</b>	<b>Lesson Correlation</b>		
1. 93,205	1.5	40. $4\frac{9}{10}$	9.8
2. one hundred three thousand, four hundred fifty	1.5	41. 6.005	10.2
3. 1,999; 3,451; 12,642	1.7	42. 29.53	10.3
4. 57,000	1.9	43. 13.118	10.5
5. 96	2.4	44. 11.225	10.5
6. 13,854	2.7	45. 17.79	10.6
7. 241	3.3	46. .973	10.6
8. 219	3.6	47. 8.7	10.7
9. 2,625	3.7	48. .00581	10.7
10. 994,431 papers	2.7	49. 6.075	10.7
11. 59,863 drivers	3.6	50. .91	10.9
12. 13,216	4.1, 4.2	51. 3.07	10.10
13. 1,448	4.4	52. 800	10.10
14. 63,945	4.5	53. 8.16	10.10
15. 19,228	4.8	54. $\frac{3}{100}$ .03	11.2, 11.7, 11.8
16. 7	5.2	55. 332%, 3.32	10.14, 11.1, 11.4, 11.8
17. 5 R3	5.3	56. 525%, $5\frac{1}{4}$	10.13, 11.1, 11.4, 11.7
18. 320	5.4	57. 14.4	11.3
19. 43	5.7	58. 40%	11.9
20. 809	5.8	59. \$3,175	11.6
21. 50 R17	5.8	60. 20%	11.10
22. 63 boxes	5.6	61. $\frac{5}{8}$	12.1
23. 43,210 meters	5.9	62. 120 miles	12.5
24. 8	6.4	63. 90 pounds	12.6
25. 48	6.5	64. $3\frac{1}{2}$ symbols	13.1
26. $\frac{4}{5}$	7.3	65. 8	13.8
27. $\frac{5}{8}$ , $\frac{2}{3}$ , $\frac{3}{4}$	7.7	66. $\frac{5}{14}$	13.11
28. $\frac{11}{4}$	7.9	67. 12 hours 44 minutes	14.6
29. $\frac{4}{13}$	8.2	68. 9	14.1
30. 24	8.3	69. 2	14.1
31. $15\frac{8}{9}$	8.4	70. 4	14.2
32. $3\frac{1}{2}$	8.5	71. 4,600	14.2
33. 70	8.5	72. 16	14.3
34. $3\frac{11}{28}$	8.9	73. 6	14.3
35. $\frac{9}{13}$	9.1	74. 8,600	15.2
36. $\frac{2}{9}$	9.1	74. .420	15.3
37. $14\frac{4}{7}$	9.3	76. 5	15.4
38. $7\frac{2}{5}$	9.4	77. 42 inches	16.6
39. $1\frac{1}{2}$	9.5	78. 480 sq. cm	16.8
		79. 37.68 m	16.10
		80. 1,230.88 cu. ft	16.14
		81. -13	17.2
		82. -6	17.3

- |                     |      |   |
|---------------------|------|---|
| <b>83.</b> +3       | 17.4 | B. Incorrect; multiplied, then subtracted     |
| <b>84.</b> -16      | 17.4 | C. Correct                                    |
| <b>85.</b> +1       | 17.4 | D. Incorrect                                  |
| <b>86.</b> +30      | 17.5 | <b>10.</b> A. Incorrect; added                |
| <b>87.</b> -27      | 17.5 | B. Incorrect                                  |
| <b>88.</b> -8       | 17.6 | C. Incorrect; used extra information          |
| <b>89.</b> +10      | 17.6 | B. Correct                                    |
| <b>90.</b> 2        | 18.2 | <b>11.</b> A. Incorrect; not the LCM          |
| <b>91.</b> 39       | 18.3 | B. Incorrect; multiple of 3 only              |
| <b>92.</b> 23       | 18.3 | C. Correct                                    |
| <b>93.</b> 41       | 18.4 | C. Incorrect; multiple of 5 only              |
| <b>94.</b> 79       | 18.4 | <b>12.</b> A. Incorrect; found only 1 factor  |
| <b>95.</b> 8        | 18.5 | B. Incorrect; factored incorrectly            |
| <b>96.</b> 125      | 18.5 | C. Correct                                    |
| <b>97.</b> 3        | 18.7 | D. Incorrect; factored incorrectly            |
| <b>98.</b> 12       | 18.7 | <b>13.</b> A. Incorrect; factored incorrectly |
| <b>99.</b> 2 hr.    | 18.6 | B. Correct                                    |
| <b>100.</b> 210 mi. | 18.6 | C. Incorrect; factored incorrectly            |
|                     |      | D. Incorrect; factored incorrectly            |

### Unit 1 • Cumulative Review

- A. Correct  
B. Incorrect; found an odd number  
C. Incorrect; found an odd number  
D. Incorrect; found an odd number
- A. Incorrect; read number incorrectly  
B. Incorrect; read number incorrectly  
C. Incorrect; read number incorrectly  
D. Correct
- A. Incorrect; found those that are greater than 1,500  
B. Correct  
C. Incorrect; found those that are less than 500  
D. Incorrect; found those that are less than 1,600
- A. Incorrect; subtracted incorrectly  
B. Incorrect; subtracted incorrectly  
C. Correct  
D. Incorrect; added
- A. Incorrect; rounded incorrectly  
B. Correct  
C. Incorrect; rounded to nearest thousandth  
D. Incorrect; rounded incorrectly
- A. Incorrect; ordered incorrectly  
B. Incorrect; ordered from greatest to least  
C. Incorrect; ordered incorrectly  
D. Correct
- A. Incorrect; added  
B. Incorrect; subtracted  
C. Correct  
D. Incorrect
- A. Correct  
B. Incorrect; subtracted  
C. Incorrect; added  
D. Incorrect; divided incorrectly
- A. Incorrect; missed first step

- A. Incorrect; added  
B. Incorrect  
C. Incorrect; used extra information  
B. Correct
- A. Incorrect; not the LCM  
B. Incorrect; multiple of 3 only  
C. Correct  
C. Incorrect; multiple of 5 only
- A. Incorrect; found only 1 factor  
B. Incorrect; factored incorrectly  
C. Correct  
D. Incorrect; factored incorrectly
- A. Incorrect; factored incorrectly  
B. Correct  
C. Incorrect; factored incorrectly  
D. Incorrect; factored incorrectly
- A. Correct  
B. Incorrect; miscalculated square root  
C. Incorrect  
D. Incorrect; did not recognize square root symbol
- A. Incorrect; chose basic fact  
B. Correct  
C. Incorrect; not prime factorization  
D. Incorrect; not prime factorization

### Critical Thinking

Ben needs to buy 4 of choice C and 3 of choice A; None  $(100 \times 4) + (32 \times 3) = 496$

### Challenge

You can buy 10 sheets of choice A.  $10 \times 32 = 320$ ; you can buy 16 books of Choice B and 1 sheet of Choice A.  $(16 \times 18) + 32 = 288 + 32 = 320$

### Unit 2 • Cumulative Review

- A. Correct  
B. Incorrect; chose the wrong numerator and denominator  
C. Incorrect; added incorrectly  
D. Incorrect; chose the wrong denominator
- A. Incorrect; chose the wrong numerator and denominator  
B. Incorrect; chose the wrong numerator  
C. Correct  
D. Incorrect; student possibly did not understand the question
- A. Correct  
B. Incorrect; did not convert to equivalent fractions correctly  
C. Incorrect; added denominators  
D. Incorrect; added denominators

4. A. Incorrect; ordered the fractions from greatest to least  
 B. Incorrect; ordered the fractions by their numerators  
 C. Correct  
 D. Incorrect; ordered the fractions by their denominators
5. A. Incorrect; multiplied  $1 \times 2$  and then added 8 to get 10 in the numerator  
 B. Incorrect; added  $2 + 8 + 1$  to get 11 in the numerator  
 C. Correct  
 D. Incorrect; put the whole number in front of the digit already in the numerator.
6. A. Incorrect; divided by 16  
 B. Incorrect; added the whole numbers  
 C. Incorrect; student may have simplified wrong  
 D. Correct
7. A. Incorrect; multiplied the numbers  
 B. Incorrect; added the denominators to get the numerator and multiplied the denominators to get the denominator  
 C. Correct  
 D. Incorrect; multiplied  $3 \times 16$
8. A. Incorrect; subtracted the numbers  
 B. Correct  
 C. Incorrect; added the numbers  
 D. Incorrect; divided the numbers
9. A. Incorrect; multiplied  
 B. Incorrect; inverted the whole number  
 C. Correct  
 D. Incorrect; student possibly did not understand the problem
10. A. Correct  
 B. Incorrect; included the fractional part as another whole book  
 C. Incorrect; added the numbers  
 D. Incorrect; multiplied the numbers
11. A. Incorrect; added numerators and denominators  
 B. Incorrect; added fractions only  
 C. Incorrect  
 D. Correct
12. A. Correct  
 B. Incorrect; subtracted  $\frac{2}{5}$  from  $\frac{3}{5}$   
 C. Incorrect; student made a mistake renaming the fraction  
 D. Incorrect; student added the numbers
13. A. Incorrect; added incorrectly  
 B. Incorrect; added only whole numbers  
 C. Incorrect; added  
 D. Correct
14. A. Correct  
 B. Incorrect; second step missing  
 C. Incorrect; renamed fraction incorrectly  
 D. Incorrect; added
15. A. Correct  
 B. Incorrect; made an error subtracting the fractions  
 C. Incorrect; made an error adding  
 D. Incorrect; added  $\frac{1}{2}$
- Critical Thinking**  
 Less;  $\frac{1}{5}$  of 5 = 1,  $\frac{1}{4}$  of 8 = 2;  $2 + 1 = 3$ ,  $8 + 10 + 5 + 7 = 30$ ,  $\frac{1}{2}$  of 30 = 15 so  $3 < 15$
- Challenge**  
 12 more,  $15 - 3 = 12$
- Unit 3 • Cumulative Review**
1. A. Incorrect  
 B. Correct  
 C. Incorrect  
 D. Incorrect; chose the two largest two-digit number after the decimal point
2. A. Correct  
 B. Incorrect; forgot to subtract whole numbers  
 C. Incorrect; aligned the numbers incorrectly  
 D. Incorrect; added the distances
3. A. Incorrect; did not add carried numbers  
 B. Incorrect; multiplied incorrectly  
 C. Correct  
 D. Incorrect; multiplied incorrectly
4. A. Incorrect; multiplied the numbers  
 B. Incorrect  
 C. Correct  
 D. Incorrect
5. A. Incorrect; found the percent purchase that is pens  
 B. Incorrect; divided 3 by 7  
 C. Correct  
 D. Incorrect; divided 7 by 3
6. A. Incorrect; multiplied by .012  
 B. Incorrect; divided \$250 by 12  
 C. Correct  
 D. Incorrect; divided \$250 by 1.2
7. A. Incorrect; only included 1 shirt  
 B. Incorrect; subtracted the tax  
 C. Incorrect; forgot the sales tax  
 D. Correct
8. A. Incorrect; found the cost of 1 pound of bananas  
 B. Incorrect; divided by 3  
 C. Incorrect; made an error when multiplying by 3  
 D. Correct
9. A. Incorrect  
 B. Correct  
 C. Incorrect; subtracted \$3.00  
 D. Incorrect; used only .3
10. A. Incorrect; set up proportion incorrectly or multiplied across  
 B. Incorrect; subtracted 5 from 25  
 C. Incorrect; added 5 to 25  
 D. Correct
11. A. Incorrect; added 5, \$.79, and \$2.29, then subtracted from \$10  
 B. Correct

- C. Incorrect; forgot to include binder  
D. Incorrect; only included one notebook
12. A. Incorrect  
B. Correct  
C. Incorrect; used the dollar difference as the percent decrease  
D. Incorrect; compared amount of decrease to sale price
13. A. Incorrect; divided \$1,085 by 15  
B. Correct  
C. Incorrect; multiplied \$1,085 by 1.5  
D. Incorrect; compared amount of decrease to sale price
14. A. Correct  
B. Incorrect; divided the difference by the sale price  
C. Incorrect; divided the sale price by the original price  
D. Incorrect; incorrectly divided the original price by the sale price
15. A. Incorrect; set up proportion incorrectly  
B. Incorrect; subtracted  $40 - 12$   
C. Correct  
D. Incorrect; set up proportion incorrectly

#### Critical Thinking

Plan A  $\$12.75 \times 40 = \$510.00$ ; Plan B  $\$8.50 \times 40 = \$340.00$ ;  $5\%$  of  $\$1,500 = \$75.00 + 340.00 = \$415.00$

#### Challenge

$\$3,401$ ; Students should realize that they need to have at least double the sales since  $\$150$  commission still leaves them short by  $\$20$ . A guess and check from  $\$3,000$  should lead them to the answer or  $\$171$  in earned commission or  $\$3,401$  in sales.

### Unit 4 • Cumulative Review

1. A. Incorrect; only Tuesday is below  $65^\circ$   
B. Incorrect; only Monday is below  $65^\circ$   
C. Incorrect; Thursday is  $65^\circ$   
D. Correct
2. A. Incorrect; added incorrectly  
B. Incorrect; subtracted or read graph incorrectly  
C. Correct  
D. Incorrect; subtracted or read graph incorrectly
3. A. Correct  
B. Incorrect  
C. Incorrect; divided incorrectly  
D. Incorrect
4. A. Incorrect; added all the terms  
B. Incorrect  
C. Incorrect  
D. Correct
5. A. Incorrect; used  $A = b \times h$   
B. Correct  
C. Incorrect  
D. Incorrect; used  $A = 2b \times h$
6. A. Correct

- B. Incorrect; divided by 100  
C. Incorrect; divided by 10  
D. Incorrect; multiplied by 10
7. A. Incorrect  
B. Correct  
C. Incorrect  
D. Incorrect
8. A. Incorrect; found elapsed time from 4:00 a.m.–7:35 a.m.  
B. Correct  
C. Incorrect; did not use the minutes  
D. Incorrect; added the numbers
9. A. Incorrect; divided by 4  
B. Correct  
C. Incorrect; multiplied by 2  
D. Incorrect; multiplied by 4
10. A. Incorrect; may have subtracted  $28 - 19$   
B. Correct  
C. Incorrect; subtracted  $39 - 18$   
D. Incorrect; added the numbers
11. A. Correct  
B. Incorrect; found the probability of choosing a white cube  
C. Incorrect; found the ratio of green to white and red cubes  
D. Incorrect; found the probability of choosing a red cube
12. A. Incorrect; found the mode  
B. Incorrect; found the mean  
C. Correct  
D. Incorrect; found the highest score
13. A. Incorrect; found the perimeter of the frame  
B. Correct  
C. Incorrect; found the area of the picture  
D. Incorrect; multiplied the three numbers
14. A. Incorrect; student used  $C = r\pi$   
B. Correct  
C. Incorrect; used 100 for the diameter  
D. Incorrect; used  $C = d^2\pi$
15. A. Incorrect; named the other base angle  
B. Incorrect; student found the sum of the base angles  
C. Correct  
D. Incorrect; subtracted  $180 - 36$

#### Critical Thinking

4 meters;  $(4 \times 4) \times 4 = 16 \times 4 = 64$  cubic meters

#### Challenge

8 times more volume;  $(8 \times 8) \times 8 = 64 \times 8 = 512$  cubic meters

### Unit 5 • Cumulative Review

1. A. Incorrect; found the sum of 217 and 28  
B. Incorrect; found the difference between 117 and 28  
C. Incorrect found the sum of 17 and 28  
D. Correct

2. A. Correct  
B. Incorrect  
C. Incorrect; added 5  
D. Incorrect; added 5 to 3
3. A. Incorrect; subtracted incorrectly  
B. Incorrect; thought Friday was the coldest  
C. Incorrect; added  $17^\circ + 3^\circ$ ; subtracted  $17^\circ - 3^\circ$   
D. Correct
4. A. Correct  
B. Incorrect; multiplied the value of the points  
C. Incorrect; added 7, 2, and 5  
D. Incorrect
5. A. Incorrect; did not divide by 3  
B. Incorrect; subtracted 6  
C. Correct  
D. Incorrect; ignored signs
6. A. Incorrect; used a negative sign to represent a gain  
B. Incorrect; student multiplied the numbers  
C. Incorrect; student divided the numbers  
D. Correct
7. A. Incorrect; went down 2 then up 4 from 2nd  
B. Incorrect  
C. Correct  
D. Incorrect; started on the second floor
8. A. Incorrect; student did not multiply first  
B. Correct  
C. Incorrect did not simplify in the parenthesis first  
D. Incorrect; did not multiply first
9. A. Correct  
B. Incorrect; added all numbers  
C. Incorrect;  $4 + 3 - 2$   
D. Incorrect  $(3 + 2) - (4 + 2)$
10. A. Incorrect; answer is true  
B. Incorrect; answer is true  
C. Incorrect; answer is true  
D. Correct; product should be  $+36$
11. A. Incorrect; divided  $72 \div 576$   
B. Correct  
C. Incorrect; divided incorrectly  
D. Incorrect; subtracted the numbers
12. A. Incorrect; subtracted 4 from 12  
B. Incorrect; divided 16 by 2  
C. Incorrect; did not undo division  
D. Correct
13. A. Incorrect; used the equation  $25x + 5 = 55$   
B. Correct  
C. Incorrect; added 25 to 55  
D. Incorrect; subtracted 5 from 55, then subtracted 25
14. A. Correct  
B. Incorrect; divided incorrectly  
C. Incorrect; subtracted the numbers  
D. Incorrect; added the numbers

15. A. Incorrect; student may have ignored sign  
B. Incorrect  
C. Incorrect; student added 24 to both sides; did not solve for  $c$   
D. Correct

### Critical Thinking

The sum of the given temperatures is  $+6$ , so the sum of the three temperatures should equal  $-6$ . For example: Monday  $-3^\circ$ , Tuesday  $-3^\circ$ , and Wednesday  $0^\circ$ .

### Challenge

Average =  $0^\circ$ ;  $-7^\circ$ ,  $-7^\circ \div 7 = -1^\circ$

### Midterm • Chapters 1-9

Answer	Lesson Correlation
1. 65,805	1.5
2. two hundred million, eleven	1.5
3. 4,899; 45,630; 124,000	1.7
4. 823,000	1.9
5. 99	2.3
6. 9,050	2.7
7. 131	3.3
8. 3,702	3.6
9. 4,875	3.7
10. 68,963 bytes	2.5
11. 3,525 straws	3.4
12. 26,703	4.3
13. 7,659	4.4
14. 37,392	4.5
15. 57,564	4.8
16. 4	5.2
17. 8R5	5.3
18. 210	5.4
19. 41	5.7
20. 808	5.8
21. 40R5	5.8
22. 26 rows	5.6
23. 1,300,000 sheets of paper	5.9
24. 15	6.4
25. $\frac{5}{6}$	7.3
26. 45	6.5
27. $\frac{3}{5}, \frac{7}{10}, \frac{5}{6}$	7.7
28. $\frac{17}{5}$	7.9
29. $\frac{2}{7}$	8.1
30. 36	8.3

31. $31\frac{1}{20}$	8.4	31. 24	8.4, 8.5
32. $1\frac{2}{3}$	8.5	32. 3	8.5
33. $49\frac{1}{2}$	8.5	33. 33	8.5
34. 9	8.5, 8.6	34. $1\frac{27}{50}$	8.9
35. $\frac{7}{9}$	9.1	35. $\frac{6}{7}$	9.1
36. $\frac{4}{6} = \frac{2}{3}$	9.1	36. $\frac{3}{12} = \frac{1}{4}$	9.1
37. $2\frac{6}{8} = 2\frac{3}{4}$	9.3	37. $4\frac{4}{5}$	9.3
38. $8\frac{1}{5}$	9.4	38. $3\frac{1}{8}$	9.4
39. $1\frac{7}{40}$	9.5	39. $\frac{34}{35}$	9.5–9.8
40. $\frac{3}{6} = \frac{1}{2}$	9.6	40. $\frac{5}{6}$	9.6

### Final Exam • Chapters 1–18

Answer	Lesson Correlation		
1. 403,125	1.5	41. .032	10.2
2. forty-five thousand, one hundred nineteen	1.5	42. 16.89	10.3
3. 4,999; 45,009; 115,832	1.7	43. 18.073	10.5
4. 875,000	1.9	44. 13.246	10.5
5. 98	2.3	45. 9.36	10.6
6. 13,042	2.7	46. 2.952	10.6
7. 313	3.3	47. 7.2	10.7
8. 1,913	3.6	48. .00666	10.7
9. 1,022	3.7	49. 2.96555	10.7
10. 65,500 sandwiches	2.5	50. 1.516	10.9
11. 789 people	3.4	51. 2.07	10.10
12. 6,916	4.3	52. 44.4	10.10
13. 2,019	4.4	53. 4.39	10.10
14. 53,196	4.5	54. $\frac{2}{25}$ , .08	10.13, 11.2
15. 11,856	4.8	55. 160%, 1.6	10.14, 11.8
16. 9	5.2	56. 380%, $3\frac{4}{5}$	10.13, 11.7
17. 6R4	5.3	57. 19.5	11.3
18. 310	5.4	58. 44%	11.9
19. 28	5.7	59. \$1,256.25	11.6
20. 906	5.8	60. 25%	11.10
21. 60R23	5.8	61. $\frac{4}{7}$	12.1
22. 45 rows	5.6	62. \$21	12.4
23. 196,000 hours	5.9	63. 40 mi	12.5
24. 4	6.4	64. $2\frac{1}{2}$ symbols	13.1
25. 28	7.3	65. 5	13.8
26. $\frac{3}{4}$	6.5	66. $\frac{1}{4}$	13.11
27. $\frac{1}{9}$ , $\frac{7}{12}$ , $\frac{3}{4}$	7.7	67. 4 hours 1 minute	14.6
28. $\frac{16}{3}$	7.9	68. 24	14.1
29. $\frac{1}{5}$	8.1	69. $\frac{2}{3}$	14.1
30. $\frac{1}{5}$	8.1, 8.2	70. 3	14.2
		71. 2,400	14.2
		72. 20	14.3
		73. 8	14.3

<b>74.</b> 34	15.2	<b>88.</b> $-4$	17.6
<b>75.</b> .23	15.3	<b>89.</b> $+9$	17.6
<b>76.</b> 9	15.4	<b>90.</b> 9	18.2
<b>77.</b> 18 cm	16.6	<b>91.</b> 21	18.2
<b>78.</b> 64 sq yd	16.8	<b>92.</b> 3	18.3
<b>79.</b> 31.4 in.	16.10	<b>93.</b> 39	18.4
<b>80.</b> 471 cu m	16.14	<b>94.</b> 76	18.4
<b>81.</b> $-9$	17.2	<b>95.</b> 3	18.5
<b>82.</b> $-6$	17.3	<b>96.</b> 100	18.5
<b>83.</b> $+6$	17.4	<b>97.</b> 2	18.7
<b>84.</b> $-9$	17.4	<b>98.</b> 6	18.7
<b>85.</b> $+1$	17.4	<b>99.</b> $3\frac{1}{2}$ hr	18.6
<b>86.</b> $+15$	17.5	<b>100.</b> 260 mi	18.6
<b>87.</b> $-63$	17.5		