Name _____ Date_____

Pretest: **Circle** the number of your proficiency in the following areas.

Posttest: Put an **X** on the number of your proficiency in the following areas.

Level: GED Unit: Number Sense- Distance and Cost

Standard: CCR.MA.GED.Q.2.a, CCR.MA.GED.Q.2.e, CCR.MA.GED.A.2.b

Learning Goal: Solve real-world problems involving linear equations.

	GOALS
4	Students will be able to use information in graphic, verbal, or numerical format to substitute known values into equations in order to solve for an unknown variable.
	0 1 2 3 4
3	Students will be able to substitute values for certain variables into an equation in order to solve for an unknown variable relating to cost AND distance formulas.
	0 1 2 3 4
2	Students will be able to substitute values for certain variables into an equation in order to solve for an unknown variable relating to a cost or distance formula.
	0 1 2 3 4
1	Students will recognize or recall specific vocabulary, including: distance, rate, time.
	0 1 2 3 4

Pre-Test – Number Sense, Distance and Cost

1. How far can Anya drive in 5 hours if she averages 60 miles per hour?

2. If Yam drives 280 miles in 5 hours, what is his average speed per hour?

3. Brent is taking a bus to Chicago, 240 miles from his home. If the bus averages 60 miles per hour, how long will the trip take without any stops?

4. On a road trip to Portland, Dolores averaged 60 miles per hour while driving for 6 hours 30 minutes. How far did Dolores drive?

5. Lei hiked 8 miles in 10 hours. At this rate, how many miles did Lei hike each hour?

6. Matteo can ride his bike at an average speed of 15 miles per hour. How long will it take him to cover 40 miles without making any stops?

7. At the Aquatic Center, Isaac can swim 1.5 laps in 1 minute. How many laps can Isaac swim in 10 minutes continuously?

8. Marsha walked from her house to the library, a distance of 2.4 miles. If she walked at a rate of 3 miles per hour, how long did the walk take? Express your answer in minutes.

4. **a.** least area = $4.9 \times 2.9 = 14.21$ sq in.
   b. greatest area = $5.1 \times 3.1 = 15.81$ sq in.
   c. No. The brass piece may have any area between 14.5 sq in. and 15.5 sq in. The least area that the brass piece may actually be is outside the allowed range, as defined by the tolerance.

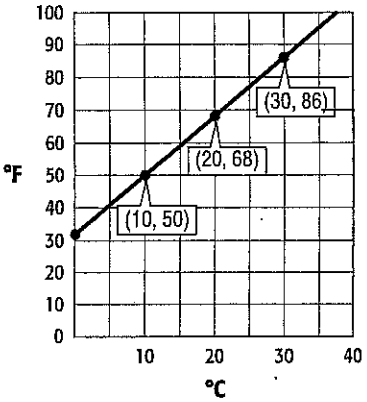
Pretest Answers

Page 179

1. distance; 300 miles
2. rate; 56 miles per hour
3. time; 4 hours
4. distance; 390 miles
5. rate; 0.8 mile per hour
6. time; 2 hours 40 minutes
7. distance; 15 laps
8. time; 48 minutes

Pages 180–181

1. degrees Celsius
2. degrees Fahrenheit
3. **a.** 0°C
   b. ≈ 16°C
   c. ≈ 25°C
   d. ≈ 32°C
4. Three sample points have been chosen. Different points may be used, but the graphed line should be the same.



5. ≈ 17
6. 0°C
7. ≈ 21°

Page 182–

1. **a.** lef
   rig
   fro
   ba
   to
   bo
   b. 27
2. **a.** 96
   b. 13
3. **a.** 2 c
   b. 10
4. **a.** Bo
   Bo
   b. Bo
   th
   m
   m
5. ... sa

Page 184

1. 100 s
2. r/h

Page 185

1. Perim
   Area
2. 9.42 s

Pages 186

1. 22 in.
2. $2\frac{4}{5}$ in.
3. 96 yd
4. $19\frac{1}{4}$ ft
5. 24 ft

LESSON

5

Distance and Cost

Key Ideas

- The following all indicate multiplication:

  $n \times r$ nr $n(r)$ $n \cdot r$

- The following indicate division:

  $c \div n$ $\frac{c}{n}$ $n\sqrt{c}$

- A formula can be rewritten to solve for each of its variables.

  $c = nr$ $\frac{c}{n} = r$ $\frac{c}{r} = n$

  $d = rt$ $\frac{d}{r} = t$ $\frac{d}{t} = r$

ON THE GED® TEST

Substitute all of the values for variables back into a formula to check your answer.

Distance

On the *Mathematical Reasoning Test*, you'll see questions that will require you to apply formulas. When a relationship is constant, use a formula to set up the information about how the different parts relate to each other. One of the most commonly tested formulas deals with distance, rate, and time. Distance is a product of the rate at which something travels and the amount of travel time:

$$\text{distance} = \text{rate} \times \text{time}, \quad \text{or} \quad d = rt$$

Notice that letters, or variables, can be used to represent the different parts of a formula. A formula allows you to substitute known values for certain variables and solve for the unknown variable.

Example 1: How many miles can you travel if you drive at an average speed of 55 miles per hour for 3 hours?

1. You know the rate (55 miles per hour) and the time (3 hours). Substitute the values in the distance formula. $\quad \text{distance} = 55 \times 3$

2. Multiply to find the distance. $\quad 55 \times 3 = \mathbf{165\ miles}$

Cost

Another helpful formula is the cost formula. It expresses the relationship between cost, the number of units, and rate (price per unit). Note: The word *per* means for every one unit. The cost formula can be written as amoung:

$$\text{total cost} = (\text{number of units}) \times (\text{price per unit}), \quad \text{or} \quad c = nr$$

Example 2: At a bakery, a package of frosted cookies is priced at \$3 per package. If a teacher treats her class by buying 4 packages, how much would the cookies cost before tax?

1. You know the number of units (4 packages) and the price per unit (\$3 per package). Substitute the values in the cost formula. $\quad c = nr$, $\text{total cost} = 4 \times \$3$

2. Multiply to find the total cost. $\quad 4 \times \$3 = \mathbf{\$12}$

If you know any two of the three variables in a formula, you can solve for the third variable.

Example 3: Max bought a set of 4 floor mats for \$44. How much was the price per floor mat?

1. You know the total cost (\$44) and the number of units (4 floor mats). Rewrite the formula to solve for the price per unit (r). $\quad c = nr$, $r = \frac{c}{n}$

2. Substitute the known values in the cost formula. Divide to find the price per unit. $\quad \frac{\$44}{4} = \mathbf{\$11}$

NUMBER SENSE AND PROBLEM SOLVING ▸ PRACTICE 5

A. Each problem below includes two of the three variables from either the distance formula or the cost formula. Write the missing variable you need to solve for. Then decide which of the following formula variations you would use in each situation. The first one is done for you.

$d = rt$ $\quad \frac{d}{r} = t$ $\quad \frac{d}{t} = r$ $\quad c = nr$ $\quad \frac{c}{n} = r$ $\quad \frac{c}{r} = n$

1. Given: distance and time
   Solve for: rate
   Formula: $\frac{d}{t} = r$
2. Given: rate and time
   Solve for: _____
   Formula: _____
3. Given: distance and rate
   Solve for: _____
   Formula: _____
4. Given: cost and number of units
   Solve for: _____
   Formula: _____
5. Given: number of units and price per unit
   Solve for: _____
   Formula: _____
6. Given: cost and price per unit
   Solve for: _____
   Formula: _____

B. Use the formulas provided in part A above to help you set up the problems. Solve for the unknown variable.

7. Find the total cost of 4 flats of plants at $12 each.
8. Find the total cost of 12 boxes of cookies if each box costs $3.
9. If 4 tires cost $320, how much does a single tire cost?
10. How many tickets would you get for $25 if raffle tickets cost $5 apiece?
11. If you paid $20 for 10 bus transfer tickets, how much did you pay per ticket?
12. Find the distance traveled by a car averaging 60 miles per hour for 3 hours.
13. Find the distance traveled by a train averaging 50 miles per hour for 4 hours.
14. How long does it take for a bus to travel 25 miles at an average rate of 25 miles per hour?
15. If a train travels 270 miles in 3 hours, what is the train's average speed?
16. How long does it take to complete a delivery route of 75 miles at a rate of 25 miles per hour?

C. Choose the <u>one best answer</u> to each question.

17. A company sold a total of $640 in gift boxes. If the gift boxes cost $20 apiece, how many gift boxes did the company sell?
    A. 32
    B. 320
    C. 660
    D. 1280
18. A truck driver traveled 275 miles in 5 hours. What was his average speed in miles per hour?
    A. 1375
    B. 280
    C. 270
    D. 55

Answers and explanations begin on page 655.

Number Sense and Problem Solving Practice Questions

Directions: You MAY use your calculator.

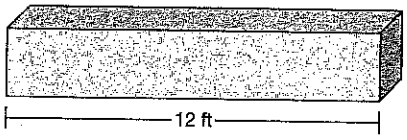
1. A beverage container holds 12 servings. If the serving size is 8 ounces, how many ounces does the container hold in all?

   A. 20
   B. 32
   C. 48
   D. 96

2. Sales at 3 concession stands are $839, $527, and $726. What is the total amount in sales?

   A. $1581
   B. $2092
   C. $2178
   D. $2517

3. If you want to cut 24 two-foot braces, how many boards of the length shown below would you need?



   A. 4
   B. 6
   C. 12
   D. 24

4. Using your calculator, find the value of $\sqrt{441}$.

   A. 11
   B. 21
   C. 221
   D. 441

5. Angelo bought a used car with 39,451 miles on it. If the car now has 70,040 miles on it, how many miles has Angelo driven the car?

   A. 30,589
   B. 39,459
   C. 70,040
   D. 109,491

6. Use your calculator to solve this problem. If Emory paid 20% of $3280 as a down payment, how much was the down payment?

   A. $164
   B. $328
   C. $656
   D. $6560

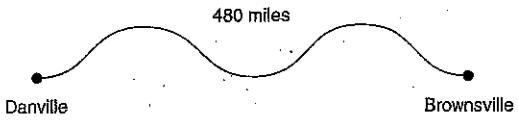
7. Inventory shows that a warehouse has 45 printers in stock. If each printer is valued at $125, what is the total value of the printer inventory?

   A. $5625
   B. $170
   C. $80
   D. $45

8. Lydia can drive 180 miles in 3 hours. On Tuesday, she drove for 7 hours at that rate. How many miles did she drive on Tuesday?

   A. 60
   B. 420
   C. 600
   D. 1260

9. Janelle wants to drive from Danville to Brownsville. If she averages 60 miles per hour, how many hours will it take her to drive the distance?



A. 6
B. 8
C. 60
D. 540

10. A company sold a total of $1440 in gift bears for Valentine's Day. If the gift bears cost $15 apiece, how many gift bears did it sell?

A. 15
B. 96
C. 144
D. 1440

11. In addition to interest charges, Richard's credit card company charges a $25 late fee for payments made after the payment due date. If he was charged a late fee for 8 different monthly bills, how much could he have saved by paying the bills on time?

A. $200
B. $80
C. $33
D. $25

12. A waiter has seven $5 bills and eighteen $1 bills from tips. In all, how much does he have in tips?

A. $18
B. $25
C. $35
D. $53

13. April has taken her car in for the recommended oil and filter change every 3,500 miles. If April bought her car brand-new, and the odometer now shows just over 17,500 miles, how many oil changes has her car received?

A. 5
B. 14
C. 123
D. 1236

14. A clinic treated 536 children over a 4-month period. At this rate, how many children did the clinic treat in 1 month?

A. 134
B. 536
C. 540
D. 2144

15. Attendance at a local play was 438 Friday night, 820 Saturday night, and 636 Sunday afternoon. How many more people attended the play on Sunday than on Friday?

Write your answer on the line below.

_____

16. Raquel has 4 payments left on her car. If each payment is $268, how much does she still owe on her car?

Write your answer on the line below.

_____

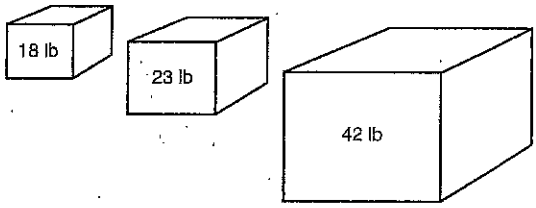
17. In what order should items weighing 51 pounds, 40 pounds, 48 pounds, and 44 pounds be stacked if you want them in order from heaviest to lightest?

A. 51, 44, 40, 48
B. 40, 44, 48, 51
C. 51, 48, 44, 40
D. 51, 40, 44, 48

18. Which of the following correctly shows 2,354,769 rounded to the nearest ten thousand?

A. 2,400,000
B. 2,355,000
C. 2,350,000
D. 2,000,000

19. What is the total weight in pounds of the packages below?



A. 83
B. 65
C. 60
D. 42

20. Jason paid a $14 dinner bill with a $20 bill. How much change should he receive?

A. $6
B. $7
C. $14
D. $34

21. Maria spent 8 minutes installing a new showerhead, 33 minutes rodding out a drain, and 18 minutes fixing a leaking faucet. About how many minutes did it take Maria to complete all three tasks?

A. 90
B. 60
C. 30
D. 20

22. Carla drove 248 miles in 4 hours. What was her average rate of speed, in miles per hour?

Write your answer on the line below.

_____

23. A bulk bag of nuts contains 144 ounces of nuts. If the nuts are packaged in smaller 8-ounce bags, how many bags will there be?

A. 8
B. 12
C. 18
D. 136

24. If you drove 299 miles on 9 gallons of gasoline, about how many miles per gallon did the car get?

A. 10
B. 30
C. 270
D. 300

MATHEMATICAL REASONING ANSWERS AND EXPLANATIONS

Number Sense and Problem Solving

Lesson 1: Compare and Order Numbers

Practice 1, page 221

1. 4
2. 8
3. 9
4. 1
5. 6
6. 7
7. 3
8. 500
9. 80
10. 1100
11. 12,000
12. 2000
13. 100
14. 100
15. 341
16. 1145
17. 125,391
18. 18, 23, 39, 45
19. 89, 91, 109, 111
20. 909, 932, 1087, 1139
21. 1420, 1425, 1429, 1432
22. 11,098, 12,071, 12,131
23. 15,298, 15,309, 15,356
24. **C. 50, 48, 45, 40** Arrange weights from heaviest to lightest.
25. **C. 1,500,000** The digit in the ten thousands column is less than 5, so round down.

Lesson 2: Whole Number Operations

Practice 2.1, page 223

1. 77
2. 100
3. 52
4. 36
5. 190
6. 4078
7. 43
8. 2117
9. 65
10. 114
11. 180
12. 293
13. 483
14. 456
15. 2419
16. 900
17. 11,308
18. 15,185
19. 131,197
20. 30,899
21. **B. 88** Calculate: $24 + 8 + 56 = 88$
22. **C. $13** Calculate: $\$20 - \$7 = \$13$

Practice 2.2, page 225

1. 484
2. 1000
3. 2736
4. 13
5. 105
6. 21
7. 1350
8. 2625
9. 3376
10. 28
11. 15
12. 6
13. 250
14. 44 r3
15. 300
16. 200 r4
17. 150
18. 67,068
19. 538
20. 384
21. 12,011 r8
22. **D. 96** Calculate: $16 \times 6 = 96$
23. **C. $75** Calculate: $15 \times 5 = 75$
24. **6** Calculate: $12 \div 2 = 6$

Lesson 3: GED® Test Calculator Skills

Practice 3.1, page 227

1. 153
2. 1187
3. 784
4. 24
5. 27,084
6. 14,442
7. 11,704
8. 54
9. 1580
10. **B. 26,179** Press clear 42920 − 16741 enter.
11. **D. $19,900** Press clear 995 × 20 enter.

Practice 3.2, page 229

1. 25
2. 18
3. 35
4. 136
5. 125
6. 5%
7. 2
8. 135
9. 5%
10. **C. $336** Press clear 1680 × 20 2nd (enter.
11. **A. 5%** Press clear 48 ÷ 960 2nd) enter. The right side of the screen will display 5%.

Lesson 4: Word Problems

Practice 4.1, page 231

1. **C. 10** No paint is needed for the floor, so ignore the 700 square feet. 3500 square feet of wall space ÷ 350 square feet per gallon = 10 gallons.
2. **B. 22** 11 children × 2 party favors per child = 22.
3. **A. 5** Calculate: $30 - 25 = 5$. The information that Sarah and Kate live 18 miles apart is not needed.
4. **90** Calculate: 450 gallons ÷ 5 gallons of *filtered* water use per day = 90 days.
5. **D. 90** The table states that it takes Joyce 30 minutes to give a pedicure. $3 \times 30 = 90$
6. **C. $25** Subtract the cost of the manicure & pedicure combination ($35) from the cost of a makeover ($60). $\$60 - \$35 = \$25$
7. **42** Calculate: $7 \times 6 = 42$
8. **$162** Calculate: $\$189 - \$27 = \$162$

Practice 4.2, page 233

1. **C. $103** Restaurant D ordered 2 cases of Boston lettuce and 3 cases of romaine lettuce in July. $(2 \times \$17) + (3 \times \$23) = \$103$.
2. **B. $18** Calculate: $4 + 4 + 2 + 2 + 1 = 13$ total cases, and delivery for the first 5 cases costs $2 each. $13 - 5 = 8$ cases remained after the first 5, so delivery for those 8 cases costs $1 each. $(5 \times \$2) + (8 \times \$1) = \$18$.
3. **B. Restaurant B** Calculate the totals for each restaurant:

Rest.	Asparagus	Tomatoes	Asparagus + Tomatoes
A	2 × $22	3 × $15	$44 + $45 = $89
B	4 × $22	1 × $15	$88 + $15 = $103
C	0 × $22	3 × $15	$0 + $45 = $45
D	1 × $22	4 × $15	$22 + $60 = $82

4. **C. 350** Calculate: $3 \times 150 =$ 450 sheets will be used. Since the paper sells in packages of 400 sheets, 2 packages are needed, and $2 \times 400 = 800$. $800 - 450 = 350$ sheets left over.
5. **A. 9** Calculate: $19 \div 2 = 9$ r1, so the friends can make 9 whole batches using 2 cups of flour for each batch (and 1 cup will be left over).
6. **A. $1500** Calculate: $(6 \times \$750) - \$3000 = \$1500$.

Lesson 5: Distance and Cost

Practice 5, page 235

1. rate; $d/t = r$
2. distance; $d = rt$
3. time; $d/r = t$
4. price per unit; $c/n = r$
5. cost; $c = nr$
6. number of units; $c/r = n$
7. **$48** $c = nr$
   $4 \times \$12 = \$48$
8. **$36** $c = nr$
   $12 \times \$3 = \$36$
9. **$80** $c/n = r$
   $\$320/4 = \$80$
10. **5** $c/r = n$
    $\$25/\$5 = 5$
11. **$2** $c/n = r$
    $\$20/10 = \$2$
12. **180 miles** $d = rt$
    $60 \times 3 = 180$
13. **200 miles** $d = rt$
    $50 \times 4 = 200$
14. **1 hour** $d/r = t$
    $25/25 = 1$
15. **90 miles per hour** $d/t = r$
    $270/3 = 90$

16. **3 hours** $d/r = t$
$75/25 = 3$
17. **A. 32** $c/r = n$
$\$640/\$20 = 32$
18. **D. 55** $d/t = r$
$275/5 = 55$

Number Sense and Problem Solving Practice Questions, pages 236–239

1. **D. 96** Multiply: 12 servings × 8 ounces = 96
2. **B. $2092** Add to find the total: $\$839 + \$527 + 726 = \$2092$
3. **A. 4** Divide the length of the sample board by the length of the brace you want: 12 foot board ÷ 2 feet per brace = 6 braces per board. Since you can get 6 braces from each board, divide the total number of braces you want by 6: 24 ÷ 6 = 4 boards.
4. **B. 21** Use the square root function on your calculator or multiply each answer option by itself to find 441.
5. **A. 30,589** Subtract to find the difference in mileage: 70,040 − 39,451 = 30,589
6. **C. $656** You can use your calculator. Multiply: $\$3280 \times 20\% = \$656$
7. **A. $5625** Multiply: $\$125 \times 45 = \$5625$
8. **B. 420** Divide distance by time to find Lydia's speed per hour: 180 ÷ 3 = 60. Then multiply by the number of hours she drove on Tuesday: 60 × 7 = 420
9. **B. 8** Divide the distance by the speed to find the time: 480 ÷ 60 = 8 hours.
10. **B. 96** Divide the total cost by price per item to find the number of items: $\$1440 \div 15 = \$96$
11. **A. $200** Multiply the late fee by the number of times Richard has paid his bill late: $\$25 \times 8 = \$200$
12. **D. $53** Calculate: $7 \times \$5 = \$35$ and $18 \times \$1 = \$18$. Add the two amounts: $\$35 + \$18 = \$53$
13. **A. 5** Divide. 17,500 total miles ÷ 3,500 miles between oil changes = 5 oil changes.
14. **A. 134** Divide: 536 total children ÷ 4 months = 134 children per month
15. **198** Subtract to find the difference: 636 − 438 = 198
16. **$1072** Multiply: $268 per payment × 4 payments left = $1072
17. **C. 51, 48, 44, 40**
18. **C. 2,350,000** Since the digit to the right of the ten thousands place is less than 5, the digit in the ten thousands place remains the same.
19. **A. 83** Calculate: 18 + 23 + 42 = 83
20. **A. $6** Calculate: $\$20 - \$14 = \$6$
21. **B. 60** Since the question says "about," you can use approximate, or rounded, figures. Round the amounts and add: 8 + 33 + 18 ≈ 10 + 30 + 20 = 60
22. **62** Divide distance by time to find the rate of speed: 248 ÷ 4 = 62
23. **C. 18** Calculate: 144 ÷ 8 = 18
24. **B. 30** Since the question says "about," you can use approximate figures. Round 299 to 300 and 9 to 10 and then divide: 300 ÷ 10 = 30
25. **C. 1200** Use rounded figures: 33 rounds to 30, and 41 pounds rounds to 40: 30 × 40 = 1200.
26. **C. $9** Find the total and divide by 4: $\$21 + \$15 = \$36$, then $\$36 \div 4 = \$9$
27. **A. $12** Subtract the amount David paid from the total: $\$128 - \$20 = \$108$. Then divide the remaining amount by the remaining number of people in the group: $\$108 \div 9 = \$12$.
28. **D. 260** 65 miles per hour × 4 hours = 260 miles.
29. **B. $18** Add the cost of a 1-topping pizza and $2 for each of the 2 additional toppings: $\$14 + \$2 + \$2 = \$18$
30. **C. 14** Multiply by 2 for each dollar: 2 × 7 = 14
31. **24** Calculate: $1800 ÷ $75 per month = 24 months
32. **14** Divide the maximum capacity by the number of pages per document: 630 ÷ 45 = 14

Decimals and Fractions

Lesson 1: Decimal Basics

Practice 1, page 241

1. 3.8
2. 6
3. 0.43
4. 0.667
5. 8.1
6. 2.714
7. 0.45
8. 0.08
9. 4.68
10. 1.85
11. 1.029
12. 0.14
13. 5.08, 5.6, 5.8, 5.802
14. 0.1136, 0.115, 0.12, 0.2
15. 4.52, 4.667, 4.8, 14.005
16. 0.8, 0.8023, 0.803, 0.823
17. **C. 0.6 g, 0.572 g, 0.0785 g** The correct answer lists the weights from greatest to least. Since none of the weights has a whole number part, compare the tenths places.
18. **D. 1.38** This is the only choice that is rounded to the hundredths place. Since the number in the thousandths place of 1.3815 is less than 5, round down.

Lesson 2: Decimal Operations

Practice 2.1, page 243

1. 7.996
2. 10.508
3. 12.26
4. 5.85
5. 7.426
6. 2.11
7. 18.094
8. 5.117
9. 21.32
10. 0.895
11. 3.84
12. 2.35
13. 5.506
14. 21.16
15. 0.645
16. 2.426
17. 0.15
18. 4.88
19. 11.8
20. 14.016
21. 4.522
22. 2.36
23. 17.88
24. 17.225
25. **A. 22.25** Add the times: 7.2 + 6.8 + 8.25 = 22.25 minutes. You do not need to use the 3-mile distance to solve the problem.
26. **C. 4.25** Add to find Claudia's total hours for the week: 8.5 + 9.25 + 8.75 + 10 + 7.75 = 44.25. Then subtract 40 to find the number of overtime hours: 44.25 − 40 = 4.25 hours.
27. **A. 1.8** Add the lengths cut from the pipe: 2.8 + 1.4 = 4.2. Then subtract from 6: 6 − 4.2 = 1.8 meters.
28. **C. $55.26** Add the amounts: $\$16.98 + \$31.78 + \$6.50 = \$55.26$

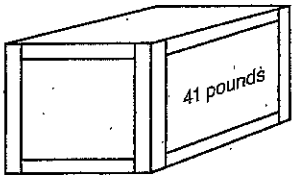
Practice 2.2, page 245

1. 2.65
2. 12.8
3. 0.496
4. 0.52
5. 3.6
6. 4.09
7. 8.75
8. 3.375
9. 9.6681
10. 24
11. 14.2
12. 15,800
13. 34.1
14. 2.36
15. 0.656
16. 2.64
17. 1.65
18. 4.275
19. 3.696
20. 1.002
21. 0.0072
22. **D. 15.16** Multiply 3.79 liters by 4: 3.79 × 4 = 15.16 liters.
23. **B. $9.23** Multiply $0.45 × 20.5: $\$0.45 \times 20.5 = \$9.225$, which rounds to $9.23.

Post Test- Number Sense- Distance and Cost

#25 - #32

25. A shipment of 33 crates like the one shown below is delivered. Approximately how many pounds did workers unload?



A. 40
B. 120
C. 1200
D. 2000

26. Four friends bought a birthday cake for $21 and balloons for $15. If they divided the cost equally, how much did each friend pay toward the birthday party?

A. $4
B. $5
C. $9
D. $36

27. David paid $20 toward a dinner bill of $128. If the remainder of the bill is divided equally among the remaining 9 people in the group, how much should each person other than David pay?

A. $12
B. $18
D. $20
E. $108

28. A driver traveled 4 hours at an average rate of 65 miles per hour. How many miles did the person drive?

A. 61
B. 69
C. 240
D. 260

29. Using the following information, how much would a large pizza with 3 toppings cost?

Large 1-Topping Pizza for $14 $2 for Each Additional Topping

A. $20
B. $18
C. $16
D. $14

30. Bagels are 2 for $1. What is the maximum number of bagels you could buy for $7?

A. 7
B. 10
C. 14
D. 15

31. How many months would it take to save $1800 at $75 per month?

Write your answer on the line below.

_____

32. How many 45-page documents would a binder hold if its maximum capacity is 630 sheets of paper?

Write your answer on the line below.

_____

Post-test Answers

16. 3 hours $d/r = t$
$75/25 = 3$
17. A. 32 $c/r = n$
$\$640/\$20 = 32$
18. D. 55 $d/t = r$
$275/5 = 55$

Number Sense and Problem Solving Practice Questions, pages 236–239

1. D. 96 Multiply: 12 servings × 8 ounces = 96
2. B. $2092 Add to find the total: $\$839 + \$527 + 726 = \$2092$
3. A. 4 Divide the length of the sample board by the length of the brace you want: 12 foot board ÷ 2 feet per brace = 6 braces per board. Since you can get 6 braces from each board, divide the total number of braces you want by 6: $24 \div 6 = 4$ boards.
4. B. 21 Use the square root function on your calculator or multiply each answer option by itself to find 441.
5. A. 30,589 Subtract to find the difference in mileage: $70{,}040 - 39{,}451 = 30{,}589$
6. C. $656 You can use your calculator. Multiply: $\$3280 \times 20\% = \$656$
7. A. $5625 Multiply: $\$125 \times 45 = \$5625$
8. B. 420 Divide distance by time to find Lydia's speed per hour: $180 \div 3 = 60$. Then multiply by the number of hours she drove on Tuesday: $60 \times 7 = 420$
9. B. 8 Divide the distance by the speed to find the time: $480 \div 60 = 8$ hours.
10. B. 96 Divide the total cost by price per item to find the number of items: $\$1440 \div 15 = \$96$
11. A. $200 Multiply the late fee by the number of times Richard has paid his bill late: $\$25 \times 8 = \$200$
12. D. $53 Calculate: $7 \times \$5 = \$35$ and $18 \times \$1 = \$18$. Add the two amounts: $\$35 + \$18 = \$53$
13. A. 5 Divide. 17,500 total miles ÷ 3,500 miles between oil changes = 5 oil changes.
14. A. 134 Divide: 536 total children ÷ 4 months = 134 children per month
15. 198 Subtract to find the difference: $636 - 438 = 198$
16. $1072 Multiply: $\$268$ per payment × 4 payments left = $\$1072$
17. C. 51, 48, 44, 40
18. C. 2,350,000 Since the digit to the right of the ten thousands place is less than 5, the digit in the ten thousands place remains the same.
19. A. 83 Calculate: $18 + 23 + 42 = 83$
20. A. $6 Calculate: $\$20 - \$14 = \$6$.
21. B. 60 Since the question says "about," you can use approximate, or rounded, figures. Round the amounts and add: $8 + 33 + 18 \approx 10 + 30 + 20 = 60$
22. 62 Divide distance by time to find the rate of speed: $248 \div 4 = 62$
23. C. 18 Calculate: $144 \div 8 = 18$
24. B. 30 Since the question says "about," you can use approximate figures. Round 299 to 300 and 9 to 10 and then divide: $300 \div 10 = 30$
25. C. 1200 Use rounded figures: 33 rounds to 30, and 41 pounds rounds to 40: $30 \times 40 = 1200$.
26. C. $9 Find the total and divide by 4: $\$21 + \$15 = \$36$, then $\$36 \div 4 = \$9$
27. A. $12 Subtract the amount David paid from the total: $\$128 - \$20 = \$108$. Then divide the remaining amount by the remaining number of people in the group: $\$108 \div 9 = \$12$.
28. D. 260 65 miles per hour × 4 hours = 260 miles.
29. B. $18 Add the cost of a 1-topping pizza and $2 for each of the 2 additional toppings: $\$14 + \$2 + \$2 = \$18$
30. C. 14 Multiply by 2 for each dollar: $2 \times 7 = 14$
31. 24 Calculate: $\$1800 \div \$75$ per month = 24 months
32. 14 Divide the maximum capacity by the number of pages per document: $630 \div 45 = 14$

Decimals and Fractions

Lesson 1: Decimal Basics

Practice 1, page 241

1. 3.8
2. 6
3. 0.43
4. 0.667
5. 8.1
6. 2.714
7. 0.45
8. 0.08
9. 4.68
10. 1.85
11. 1.029
12. 0.14
13. 5.08, 5.6, 5.8, 5.802
14. 0.1136, 0.115, 0.12, 0.2
15. 4.52, 4.667, 4.8, 14.005
16. 0.8, 0.8023, 0.803, 0.823
17. C. 0.6 g, 0.572 g, 0.0785 g The correct answer lists the weights from greatest to least. Since none of the weights has a whole number part, compare the tenths places.
18. D. 1.38 This is the only choice that is rounded to the hundredths place. Since the number in the thousandths place of 1.3815 is less than 5, round down.

Lesson 2: Decimal Operations

Practice 2.1, page 243

1. 7.996
2. 10.508
3. 12.26
4. 5.85
5. 7.426
6. 2.11
7. 18.094
8. 5.117
9. 21.32
10. 0.895
11. 3.84
12. 2.35
13. 5.506
14. 21.16
15. 0.645
16. 2.426
17. 0.15
18. 4.88
19. 11.8
20. 14.016
21. 4.522
22. 2.36
23. 17.88
24. 17.225
25. A. 22.25 Add the times: $7.2 + 6.8 + 8.25 = 22.25$ minutes. You do not need to use the 3-mile distance to solve the problem.
26. C. 4.25 Add to find Claudia's total hours for the week: $8.5 + 9.25 + 8.75 + 10 + 7.75 = 44.25$. Then subtract 40 to find the number of overtime hours: $44.25 - 40 = 4.25$ hours.
27. A. 1.8 Add the lengths cut from the pipe: $2.8 + 1.4 = 4.2$. Then subtract from 6: $6 - 4.2 = 1.8$ meters.
28. C. $55.26 Add the amounts: $\$16.98 + \$31.78 + \$6.50 = \$55.26$

Practice 2.2, page 245

1. 2.65
2. 12.8
3. 0.496
4. 0.52
5. 3.6
6. 4.09
7. 8.75
8. 3.375
9. 9.6681
10. 24
11. 14.2
12. 15,800
13. 34.1
14. 2.36
15. 0.656
16. 2.64
17. 1.65
18. 4.275
19. 3.696
20. 1.002
21. 0.0072
22. D. 15.16 Multiply 3.79 liters by 4: $3.79 \times 4 = 15.16$ liters.
23. B. $9.23 Multiply $\$0.45 \times 20.5$: $\$0.45 \times 20.5 = \$9.225$, which rounds to $9.23.