7

Short Answer

Write each power as a product of the same factor.

1. 1^2

Evaluate each expression.

2. 7×10^4

Use the guess and check strategy to solve the following problems.

3. There were ten swimmers in a swimming competition. The sum of six of the swimmers' speeds was exactly 30.00 seconds. Which six swimmers were they?

Swimmer	1	2	3	4	5	6	7	8	9	10
Speed(s)	5.36	4.47	4.56	5.03	5.16	4.44	5.19	5.38	5.23	4.57

Evaluate each expression if f = 3, g = 10, and h = −9.

4. $g - (-7) - h$

Multiply.

5. $9(-6)$

Write each sentence as an algebraic equation.

6. Six less than the number of cars is 9.

Solve problems by using the make-an-organized-list strategy.

7. Ms. Hamilton bought 6 different types of muffins in four different sized packages for a class party. How many combinations of muffins and package sizes are possible?

8. Four swimmers won medals for first, second, third, and fourth place in a swimming competition. The names of the winners are Janet, Raquel, Emily, and Shaneesha. How many different ways could the girls have won their medals?

Write each repeating decimal using bar notation.

9. 5.51050105...

Eliminate possibilities to solve.

10. The Washington family rented a camper for a 7-day vacation. The camper rental was $225 a day, plus $0.45 a mile for each mile over 700. If the family drove the camper a total of 823 miles, how much did the camper rental cost total?

11. A manatee in the wild can eat about 10% to 15% of its body weight in vegetation each day. A 1,000-pound manatee might eat about 125 pounds of vegetation a day. About how much vegetation is this in a year?

Find each unit rate. Round to the nearest tenth if necessary.
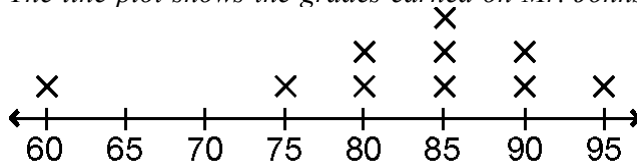
12. $253 for 20 hours

Find each number. Round to the nearest tenth if necessary.

13. 16.2% of 180 is what number?

Find the total cost to the nearest cent.

14. $1,600 boat; 5.5% sales tax

15. $320 television; 5% sales tax

*The line plot shows the grades earned on Mr. Johnson's science quiz.*

16. What was the most common grade earned on the test?

Find the median for each set of data. Round to the nearest tenth if necessary.

17. 70, 36, 21, 84, 100, 28, 55, 62, 46, 98

18. 20.4, 19.5, 27.5, 16.3, 12.9, 22.4, 30.6, 21.8

Hakeem has been working part time at as a waiter for 6 months. The line graph shows his average hourly rate over the first 6 months. Use the graph to answer the following questions.
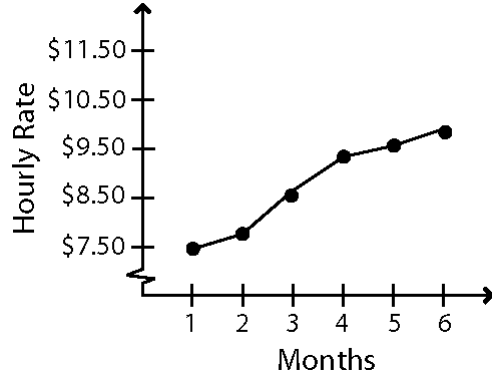
19. Which of the following statements best describes the trend in the data?

During lunch at Urbana Middle School today, several students have brought their lunch from home and several students are ordering a school lunch as shown in the table. Suppose one student is randomly selected during lunch time. Find the probability of each event. Write as a fraction in simplest form.

Brought lunch from home	55
Order school lunch	45
6th Graders	32
7th Graders	35
8th Graders	33

20. *P*(brought lunch from home or ordered school lunch)

For each situation, make a tree diagram or table to show the sample space. Then give the total number of outcomes.

21. picking a number from 1 to 4 and choosing the color red, green, or yellow

Solve.

22. How many ways can Sherri select 5 addresses from a list of 20 addresses?

23. A computer password contains 3 letters. How many different passwords can be generated if no letter is used more than once?

24. A circular dartboard is divided into 20 equally sized sections numbered from 1 to 20. What is the probability that 2 randomly thrown darts will both land on 5? (Assume that it is equally likely for a dart to land on any of the 20 sections.)

Glenn surveyed 40 of his classmates to determine their favorite cafeteria food. The results of his survey are shown in the table.

Favorite Food	Number of Students
Meatloaf	4
Tacos	5
Hamburgers	9
Pizza	18
Fish	4

25. What is the probability of pizza being a student's favorite cafeteria food?

A standard deck of playing cards contains 52 cards. The deck is divided into 4 suits of 13 cards each: hearts, diamonds, clubs, and spades. Hearts and diamonds are red suits, and clubs and spades are black suits. Suppose a card is drawn from the deck and recorded. Then the card is reinserted into the deck, the deck is shuffled, and a second card is drawn and recorded. Find each probability.

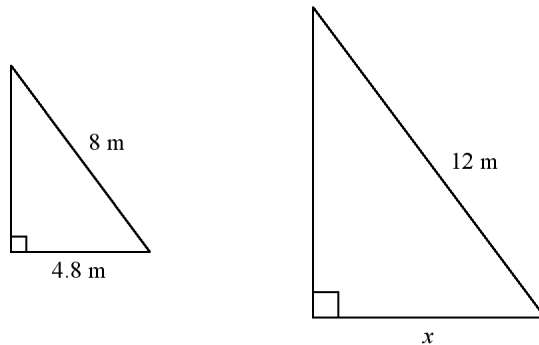26. *P*(red card on the first draw, club on the second draw)

A group of commuters from a large urban city was polled to study how people get to work each day. The results of the poll are shown in the circle graph.
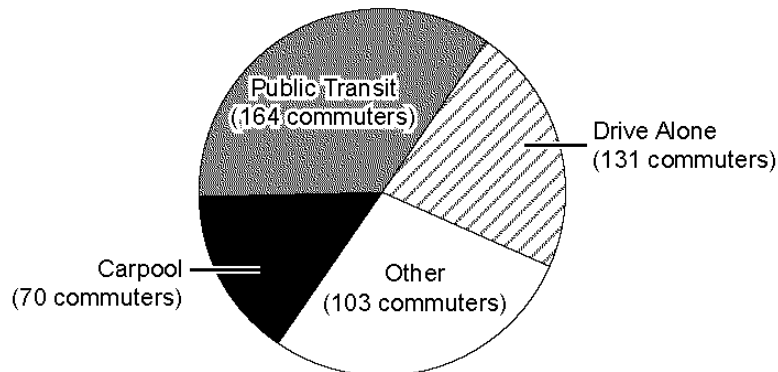
27. How many commuters were polled about their method of travel?

Find the value of x in each pair of similar figures.

28.

Find the coordinates of each figure after a reflection over the given axis.

29. triangle *RST* with vertices *R*(2, 8), *S*(–2, 4), and *T*(–4, 7) reflected over the *y*-axis

30. The number of points scored by each member of a basketball team are shown in the table. If the combined number of points scored by the team is 43, how many points did Alex score?

Name	Jamal	Josh	Edwin	Alex	Trevor	Matt	Brent	Adam
Points Scored	8	5	0	?	11	6	2	9

31. Order the following expressions from least to greatest.

9^6, 12^4, 6^8, 3^{10}, 11^5

32. The table below shows the number of cards needed to make each level of a cardhouse. If the pattern in the table continues, how many cards would you need to make the 12th level of a cardhouse?

Level	1	2	3	4	5	6	7
Number of cards	3	6	9	12	15	18	21

Find the perimeter of each figure.

33. rectangle: $l = 20$ cm, $w = 14$ cm

Write an equation, and then solve the equation.

34. Corey's cell phone bill is $88.50. The company charges $39 for 100 minutes, and $0.45 for each additional minute over 100. How many total hours did Corey use total?

35. On school days, Rita spends 9 hours sleeping and 7 hours at school. What fraction, written in simplest form, of the day is spent sleeping and what fraction is spent at school? What fraction of the day is not spent on sleeping nor at school?

36. A delayed train finally left the station at 2:00 P.M. The train is traveling 30 miles every $\frac{1}{2}$-hour. If the train was 180 miles away from the arrival station, at what time will the train arrive?

37. Abdul has hiked 14.4 miles in 6 hours. What is his unit rate? How many miles would Abdul hike in 7.5 hours?

38. Claire bought 2 pounds of chicken for $7.60. If the weight of chicken is proportional to the cost, how many pounds of chicken can Claire buy for $20.90? How much would it cost for 3 pounds?

    A real world measurement is given. Find the length of a model with the following scale.

39. a backyard fence 80 feet long; 1 inch = 10 feet

    Find each percent of change. Round to the nearest whole percent if necessary. State whether the percent of change is an increase or decrease.

40. original: 517
    new: 527.34

    In a survey, 1,851 people were asked to choose their favorite Major League Baseball team. The top 5 choices are shown. Use the information for the following problems.

Top 5 MLB Teams

Team	Survey Results
Dodgers	8%
Braves	9%
Red Sox	13%
Cubs	18%
Yankees	25%
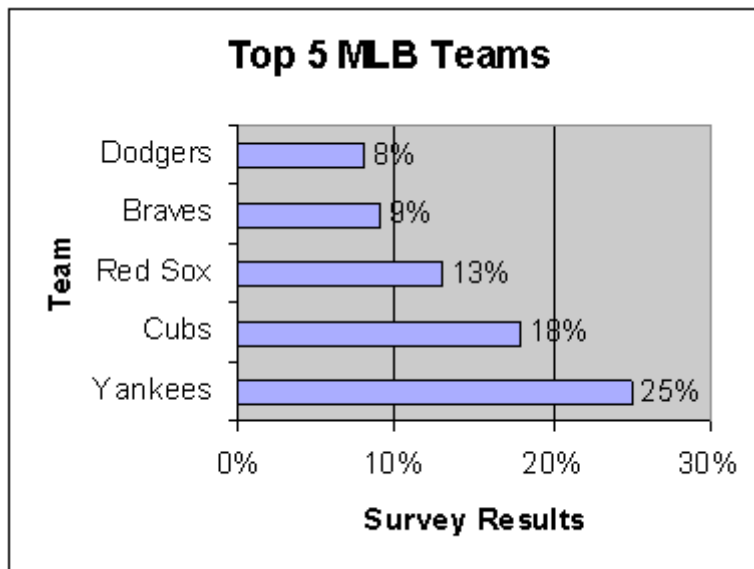
41. About how many more people chose the Cubs over the Dodgers?

Make a line plot for each set of data.

42.

Lengths of Goldfish (cm)		
28	20	24
22	24	23
23	26	22
21	23	19
20	26	25
24	23	20

Gabe is shopping for a new computer monitor on an Internet shopping site. The stem-and-leaf plot shows the prices of monitors on the site. Use the plot to answer the following questions.

Table 9.1

| Stem	Leaf
15	5 9
16	
17	
18	
19	
20	0 0 0 5 7 9
21	4 5 9 9
22	0 5 5 5 9 9
23	5 7 9
24	
25	6 9

21|4=$214

43. In Table 9.1, what is the mean price for a monitor on the website? Round to the nearest cent.

44. Does adding values that are much greater or much less than the other values in a set of data affect the mean of the set? Give and example to support your answer.
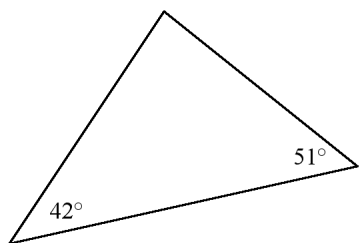
Classify each triangle by its angles and by its sides.

45.
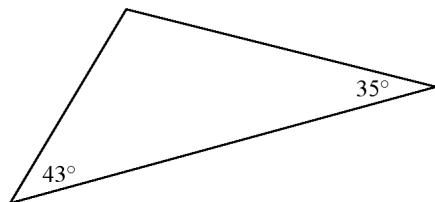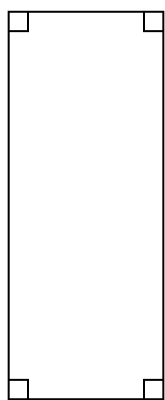

46.

*Find the **best** name to classify each quadrilateral.*

47.

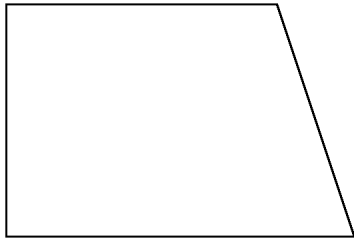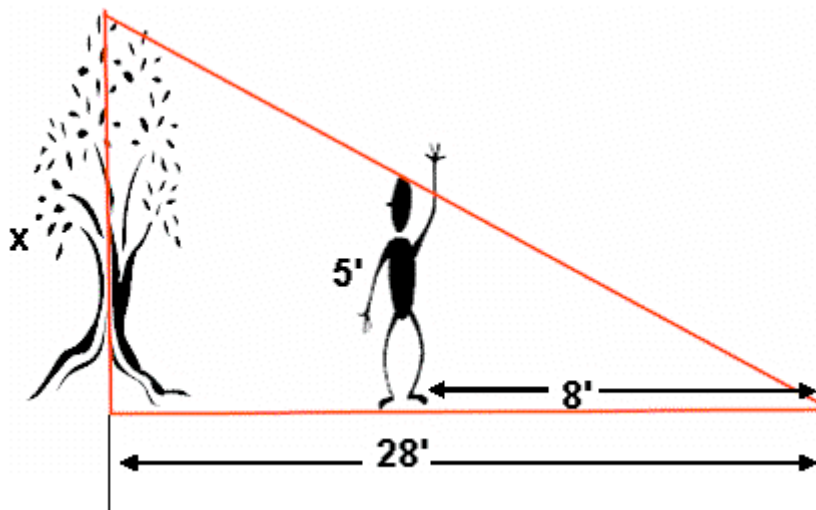*Determine which figures have line symmetry. Then draw all lines of symmetry.*

48.

49. Use the two similar triangles to find the height of the tree.

50. Find the perimeter of a regular heptagon having sides lengths of $6\frac{1}{8}$ inches.

7
Answer Section

SHORT ANSWER

1. ANS:
   1 ◊ 1
   Use the base as a factor in multiplication the number of times indicated by the exponent.

   PTS: 1   DIF: Basic   REF: Lesson 1-2
   OBJ: 1-2.1 Write powers as a product of factors.   NAT: FP3
   STA: 6.A.3   TOP: Write powers as a product of factors.
   KEY: Powers | Exponents

2. ANS:
   70,000
   1. Do all operations within grouping symbols first.
   2. Do all powers before other operations.
   3. Multiply and divide in order from left to right.
   4. Add and subtract in order from left to right.

   PTS: 1   DIF: Average   REF: Lesson 1-4
   OBJ: 1-4.2 Evaluate expressions with exponents using the order of operations.
   NAT: FP3   STA: 8.D.3c
   TOP: Evaluate expressions with exponents using the order of operations.
   KEY: Exponents | Order of operations

3. ANS:
   Swimmers 1, 3, 4, 6, 8, and 9
   The sum of the times for swimmers, 1, 3, 4, 6, 8, and 9 total 30.00. Use the guess and check method until you find a the correct sum.

   PTS: 1   DIF: Advanced   REF: Lesson 1-5
   OBJ: 1-5.1 Solve problems using the guess and check strategy.
   NAT: FP3   STA: 6.B.3a | 6.C.3a
   TOP: Solve problems using the guess and check strategy.   KEY: Guess and check | Problem solving

4. ANS:
   26
   Sample:
   g = 6, *h* = –4

   g – (–10) – *h*
   Substitute for *g* and *h* and subtract the integers. Remember to subtract any negative integers by adding
   their additive inverses.
   6 – (–10) – (–4)
   6 + 10 + 4
   20

   PTS: 1   DIF: Average   REF: Lesson 2-5
   OBJ: 2-5.3 Evaluate expressions with subtraction.   NAT: FP3
   STA: 6.B.2   TOP: Evaluate expressions with subtraction.
   KEY: Subtraction | Evaluating expressions

5. ANS:
   –54
   Sample:
   –3(13)

   When two integers have opposite signs, their product is negative.
   –3(13) = –39

   PTS: 1   DIF: Average   REF: Lesson 2-6
   OBJ: 2-6.1 Multiply integers with different signs.   NAT: FP3
   STA: 6.B.2   TOP: Multiply integers with different signs.
   KEY: Multiplication | Integers

6. ANS:
   $c - 6 = 9$
   The word less means subtract from the number or variable following the word less.

   PTS: 1   DIF: Average   REF: Lesson 3-1
   OBJ: 3-1.2 Write verbal sentences as simple algebraic equations.
   NAT: FP3   STA: 8.A.2a   TOP: Write verbal sentences as simple algebraic equations.
   KEY: Verbal sentences | Algebraic equations

7. ANS:
   24
   24
   Make an organized list.
   muffin type 1 in 4 different sizes = 4 possibilities
   muffin type 2 in 4 different sizes = 4 possibilities
   muffin type 3 in 4 different sizes = 4 possibilities
   muffin type 4 in 4 different sizes = 4 possibilities
   muffin type 5 in 4 different sizes = 4 possibilities
   <u>muffin type 6 in 4 different sizes = 4 possibilities</u>
             total possibilities = 24

   PTS: 1   DIF: Average   REF: Lesson 4-3
   OBJ: 4-3.1 Solve problems by making an organized list.
   TOP: Solve problems by making an organized list.   KEY: Make a list | Problem solving

8. ANS:
   24
   24
   Make an organized list; J is Janet, R is Raquel, E is Emily, and S is Shaneesha. There are 24 different ways the girls could have won their first, second, third, and fourth place medals.

JRES	JRSE	JSRE	JSER	JERS	JESR
RESJ	REJS	RSJE	RSEJ	RJES	RJSE
ERSJ	ERJS	EJRS	EJSR	ESRJ	ESJR
SERJ	SEJR	SJER	SJRE	SREJ	SRJE

   PTS: 1   DIF: Average   REF: Lesson 4-3
   OBJ: 4-3.1 Solve problems by making an organized list.
   TOP: Solve problems by making an organized list.   KEY: Make a list | Problem solving

9. ANS:
   5.5$\overline{1050}$
   Which numbers repeat in the decimal? Rewrite the decimal with a bar over the numbers that repeat.

   PTS: 1   DIF: Average   REF: Lesson 4-5
   OBJ: 4-5.1 Write fractions as terminating decimals or repeating decimals.
   NAT: FP5C   STA: 6.A.3
   TOP: Write fractions as terminating decimals or repeating decimals.
   KEY: Fractions | Decimals

10. ANS:
    $1,630.35
    $1,630.35; 823 − 700 = 123; 123 × $0.45 = $55.35; $55.35 + (7 × $225) = $1,630.35

    PTS: 1   DIF: Advanced   REF: Lesson 5-4
    OBJ: 5-4.1 Solve problems by eliminating possibilities.
    TOP: Solve problems by eliminating possibilities.
    KEY: Eliminating possibilities | Problem solving

11. ANS:
     50,000 pounds
     125 × 365 = 45,625

     PTS: 1   DIF: Average   REF: Lesson 5-4
     OBJ: 5-4.1 Solve problems by eliminating possibilities.
     TOP: Solve problems by eliminating possibilities.
     KEY: Eliminating possibilities | Problem solving
12. ANS:
     $12.65/hour
     The unit rate is the amount earned for 1 hour.
     $253 ÷ 20 = $12.65/hour

     PTS: 1   DIF: Average   REF: Lesson 6-2   OBJ: 6-2.1 Determine unit rates.
     TOP: Determine unit rates.   KEY: Unit rate | Ratios
13. ANS:
     29.2
     Set up a proportion to find the number.
     $$\frac{x}{180} = \frac{16.2}{100}$$

     $100x = 2916$

     $x = 29.16 \approx 29.2$

     PTS: 1   DIF: Average   REF: Lesson 7-2
     OBJ: 7-2.1 Solve problems using the percent proportion.   NAT: FP1
     STA: 6.C.3a   TOP: Solve problems using the percent proportion.
     KEY: Percent proportion
14. ANS:
     $1,688
     Change the sales tax percent to a decimal. Multiply the tax and the dollar amount. Add that product to
     the dollar amount.

     PTS: 1   DIF: Average   REF: Lesson 7-7
     OBJ: 7-7.1 Solve problems involving sales tax.   NAT: FP1
     STA: 6.C.3a   TOP: Solve problems involving sales tax.
     KEY: Sales tax | Percent problems

15. ANS:
$336

total cost $= 320 + 320 \cdot 0.05$

$= 320 + 16$

$= 336$

PTS: 1   DIF: Basic   REF: Lesson 7-7
OBJ: 7-7.1 Solve problems involving sales tax.   NAT: FP1
STA: 6.C.3a   TOP: Solve problems involving sales tax.
KEY: Sales tax | Problem solving

16. ANS:
85
The most common grade was 85.

PTS: 1   DIF: Basic   REF: Lesson 8-1
OBJ: 8-1.2 Analyze data using a line plot.   STA: 10.A.3a
TOP: Analyze data using a line plot.   KEY: Line plots | Analyzing data

17. ANS:
58.5
Order the numbers from least to greatest.
21, 28, 36, 46, 55, 62, 10, 84, 98, 100
The median is the average of the two middle numbers.
$\frac{55+62}{2} = 58.5$

PTS: 1   DIF: Average   REF: Lesson 8-2
OBJ: 8-2.2 Describe a set of data using median.   STA: 10.A.3b
TOP: Describe a set of data using median.   KEY: Median | Analyzing data

18. ANS:
21.1
Order the numbers from least to greatest.
12.9, 16.3, 19.5, 20.4, 21.8, 22.4, 27.5, 30.6
The median is the average of the two middle numbers.
$\frac{20.4+21.8}{2} = 21.1$

PTS: 1   DIF: Average   REF: Lesson 8-2
OBJ: 8-2.2 Describe a set of data using median.   STA: 10.A.3b
TOP: Describe a set of data using median.   KEY: Median | Analyzing data

19. ANS:
As Hakeem gains more experience his average hourly rate increases.
Looking at the data in the graph, option c is the most reasonable.

PTS: 1   DIF: Average   REF: Lesson 8-6
OBJ: 8-6.1 Analyze line graphs to make predictions and conclusions.
STA: 10.A.3a   TOP: Analyze line graphs to make predictions and conclusions.
KEY: Predictions | Graphs

20. ANS:
    1
    Write the number of favorable outcomes over the total number of possible outcomes and simplify.
    $\frac{55+45}{100} = \frac{100}{100} = 1$

    PTS: 1   DIF: Average   REF: Lesson 9-1
    OBJ: 9-1.2 Find the probability of a real-world simple event.
    NAT: FP7C   STA: 10.C.2a   TOP: Find the probability of a real-world simple event.
    KEY: Probability | Simple event

21. ANS:
    12

    There are twelve possible outcomes: 1R, 1G, 1Y, 2R, 2G, 2Y, 3R, 3G, 3Y, 4R, 4G, and 4Y.

    PTS: 1   DIF: Average   REF: Lesson 9-2
    OBJ: 9-2.1 Find sample spaces and probabilities.   NAT: FP7C
    TOP: Find sample spaces and probabilities.   KEY: Probability | Tree diagram

22. ANS:
    15,504
    There are 20 · 19 · 18 · 17 · 16 permutations of 5 addresses chosen from 20. There are 5! ways to
    arrange the 5 addresses.
    $\frac{20 \cdot 19 \cdot 18 \cdot 17 \cdot 16}{5!} = 15,504$

    PTS: 1   DIF: Average   REF: Lesson 9-5
    OBJ: 9-5.1 Find the number of combinations of a set of objects and find probabilities.
    STA: 10.C.3a   TOP: Find the number of combinations of a set of objects and find probabilities.
    KEY: Probability | Combination

23. ANS:
15,600 passwords

There are 26 ways to pick the first letter, 25 ways to pick the second letter, and 24 ways to pick the third letter.
$26 \cdot 25 \cdot 24 = 15,600$

PTS: 1   DIF: Average   REF: Lesson 9-4
OBJ: 9-4.1 Find the number of permutations of a set of objects and find probabilities.
STA: 10.A.3a   TOP: Find the number of permutations of a set of objects and find probabilities.
KEY: Probability | Permutation

24. ANS:
$\frac{1}{400}$

The two events are independent. Multiply the probabilities of each event.
$\frac{1}{20} \times \frac{1}{20} = \frac{1}{400}$

PTS: 1   DIF: Average   REF: Lesson 9-8
OBJ: 9-8.1 Find the probability of independent and dependent events.
STA: 10.C.3b   TOP: Find the probability of independent and dependent events.
KEY: Probability | Independent events

25. ANS:
$\frac{9}{20}$

Write the number of students who voted for pizza over the total number of students surveyed and simplify.
$\frac{18}{40} = \frac{9}{20}$

PTS: 1   DIF: Average   REF: Lesson 9-7
OBJ: 9-7.1 Find and compare experimental and theoretical probabilities.
NAT: FP7C   TOP: Find and compare experimental and theoretical probabilities.
KEY: Experimental probability | Theoretical probability

26. ANS:
$\frac{1}{8}$

Since the first card is replaced before drawing the second card, the events are independent. Multiply the probabilities of each event.
$\frac{26}{52} \times \frac{13}{52}$

$\frac{1}{2} \times \frac{1}{4} = \frac{1}{8}$

PTS: 1   DIF: Average   REF: Lesson 9-8
OBJ: 9-8.1 Find the probability of independent and dependent events.
STA: 10.C.3b   TOP: Find the probability of independent and dependent events.
KEY: Probability | Independent events

27. ANS:
    468
    Add the number of commuters from each section to find the total.
    $131 + 70 + 164 + 103 = 468$

    PTS: 1   DIF: Average   REF: Lesson 10-3 OBJ: 10-3.2 Interpret circle graphs.
    NAT: FP6C   STA: 10.A.3a   TOP: Interpret circle graphs.
    KEY: Circle graph | Analyzing data
28. ANS:
    7.2 m
    Set up a proportion to find the missing length.
    $\frac{8}{12} = \frac{4.8}{x}$

    $8x = 57.6$

    $x = 7.2$ m

    PTS: 1   DIF: Average   REF: Lesson 10-7
    OBJ: 10-7.2 Find a missing length in a pair of similar figures.
    NAT: FP1   STA: 9.A.3c   TOP: Find a missing length in a pair of similar figures.
    KEY: Similar figures | Length
29. ANS:
    $R'(-2, 8)$, $S'(2, 4)$, $T'(4, 7)$
    Each point (x, y) becomes $(-x, y)$.
    $R(2, 8) \longrightarrow R'(-2, 8)$
    $S(-2, 4) \longrightarrow S'(2, 4)$
    $T(-4, 7) \longrightarrow T'(4, 7)$

    PTS: 1   DIF: Average   REF: Lesson 10-10
    OBJ: 10-10.2 Graph reflections on a coordinate plane.   STA: 9.A.3b
    TOP: Graph reflections on a coordinate plane.   KEY: Reflections | Graphing
30. ANS:
    2
    The sum of the scores, plus Alex's score, n, will equal 43.
    $8 + 5 + 0 + n + 11 + 6 + 2 + 9 = 43$
    $41 + n = 43$
    $n = 2$

    PTS: 1   DIF: Average   REF: Lesson 1-1   OBJ: 1-1.2 Solve multi-step problems.
    NAT: FP3   STA: 6.B.3a | 6.C.3a   TOP: Solve multi-step problems.
    KEY: Multi-step | Problem solving

31. ANS:
    12^4, 3^{10}, 11^5, 9^6, 6^8

    $12^4 = 20{,}736$
    $3^{10} = 59{,}049$
    $11^5 = 161{,}051$
    $9^6 = 531{,}441$
    $6^8 = 1{,}679{,}616$

    PTS: 1   DIF: Average   REF: Lesson 1-2   OBJ: 1-2.4 Solve multi-step problems.
    NAT: FP3   STA: 6.A.3 | 8.D.3c   TOP: Solve multi-step problems.
    KEY: Multi-step | Problem solving

32. ANS:
    Thirty-six cards would be needed to complete the 12th level of the cardhouse.

    24, 27, 30, 33, 36 are the next 5 levels. 3 is added to each level.

    PTS: 1   DIF: Average   REF: Lesson 1-9   OBJ: 1-9.3 Solve multi-step problems.
    NAT: FP3   STA: 8.B.3   TOP: Solve multi-step problems.
    KEY: Multi-step | Problem solving

33. ANS:
    68 cm
    The perimeter of a rectangle is the sum of the measures of the sides. It can also be expressed as two times
    the length (l) plus two times the width (w).

    PTS: 1   DIF: Average   REF: Lesson 3-6
    OBJ: 3-6.1 Find the perimeters of figures.   NAT: FP4C
    STA: 7.A.3b   TOP: Find the perimeters of figures.   KEY: Perimeter | Measurement

34. ANS:
    $\$39 + \$0.45t = \$88.50$; $3\frac{1}{2}$ hours

    While keeping unit conversions in mind, let a variable represent the unknown value and then solve for
    that variable. Total hours are found by the sum of all the minutes used.
    Thirty-nine dollars is the monthly charge, forty-five cents is the cost per minute, t, over 100.
    $\$39 + \$0.45t = \$88.5$; subtract $\$39$ from each side to solve.
       $\$0.45t = \$49.5$; divide each side by $\$0.45$ to isolate the variable.
          $t = 110$; add 100 to 110 for the total minutes, and convert to hours.

    PTS: 1   DIF: Advanced   REF: Lesson 3-5   OBJ: 3-5.2 Solve multi-step problems.
    NAT: FP3   STA: 6.B.2|8.D.2   TOP: Solve multi-step problems.
    KEY: Multi-step | Problem solving

35. ANS:
One-third of a day is spent on things other than school and sleep.

The part of the day spent sleeping, $\frac{9}{24} = \frac{3}{8}$.

The part of a day is spent at school, $\frac{7}{24}$.

$\frac{9+7}{24} = \frac{16}{24}$

$24 - 16 = 8$

The part of a day is spent on things other than school and sleep, $\frac{8}{24} = \frac{1}{3}$.

PTS: 1   DIF: Advanced   REF: Lesson 4-4   OBJ: 4-4.2 Solve multi-step problems.
NAT: FP5C   STA: 6.B.2   TOP: Solve multi-step problems.
KEY: Multi-step | Problem solving

36. ANS:
5:00 P.M.
$180 \div 30 = 6$
6 sets of $\frac{1}{2}$ hr = 3 hours
Adding 3 hours to 2:00 P.M. will make it 5:00 P.M.

PTS: 1   DIF: Average   REF: Lesson 5-7   OBJ: 5-7.3 Solve multi-step problems.
NAT: FP3   STA: 6.B.2   TOP: Solve multi-step problems.
KEY: Multi-step | Problem solving

37. ANS:
2.4 mi/hr; 18 miles
Write a rate comparing the miles to the time. Rewrite the fraction so that the denominator is 1. Dividing 7.5 by the unit rate will result in the number of miles.

PTS: 1   DIF: Average   REF: Lesson 6-2   OBJ: 6-2.2 Solve multi-step problems.
TOP: Solve multi-step problems.   KEY: Multi-step | Problem solving

38. ANS:
5.5 pounds; $11.40
Let p represent the number of pounds.
$\frac{2 \text{ pounds}}{\$7.60} = \frac{p}{\$20.90}$; $7.60p = 41.80$; $p = 5.5$
The price per pound is $7.60 divided by 2 which is $3.80, then multiply by 3.

PTS: 1   DIF: Average   REF: Lesson 6-6   OBJ: 6-6.3 Solve multi-step problems.
NAT: FP1   STA: 6.D.3   TOP: Solve multi-step problems.
KEY: Multi-step | Problem solving

39. ANS:
8 inches

Set up a proportion and solve for the length.

$$\frac{1 \text{ in.}}{10 \text{ ft}} = \frac{x \text{ in.}}{80 \text{ ft}}$$

$10x = 80$

$x = 8$ in.

PTS: 1   DIF: Basic   REF: Lesson 6-8
OBJ: 6-8.1 Solve problems involving scale drawings.   NAT: FP1
STA: 7.C.3a   TOP: Solve problems involving scale drawings.
KEY: Scale drawings | Proportions

40. ANS:
2% increase

$527.34 - 517 = 10.34$

$\dfrac{10.34}{517} = 0.02 = 2\%$

$527.24 > 517$, so it is an increase.
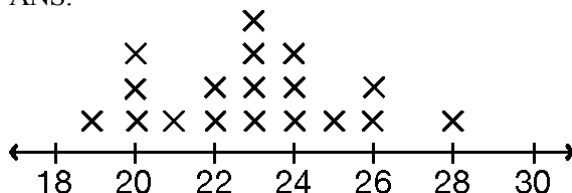
PTS: 1   DIF: Average   REF: Lesson 7-6
OBJ: 7-6.1 Find the percent of increase or decrease.   NAT: FP1
STA: 6.C.3a   TOP: Find the percent of increase or decrease.
KEY: Percent of increase | Percent of decrease

41. ANS:
185 people
Cubs: $1{,}851 \times 0.18 \approx 333$
Dodgers: $1{,}851 \times 0.08 \approx 148$

$333 - 148 = 185$

PTS: 1   DIF: Average   REF: Lesson 7-3   OBJ: 7-3.2 Solve multi-step problems.
NAT: FP1   STA: 6.C.3b   TOP: Solve multi-step problems.
KEY: Multi-step | Problem solving

42. ANS:

Mark each number with an X above it on the number line.

PTS: 1   DIF: Average   REF: Lesson 8-1
OBJ: 8-1.1 Display data using a line plot.   STA: 10.A.3a
TOP: Display data using a line plot.   KEY: Line plots | Organizing data

43. ANS:
    $216.57
    Divide the sum of the prices by the number of monitors.
    $$\frac{155+159+3(200)+205+207+209+214+215+2(219)+220+3(225)+2(229)+235+237+239+256+259}{23} \approx \$216.57$$

    PTS: 1   DIF: Average   REF: Lesson 8-3
    OBJ: 8-3.2 Analyze data in a stem-and-leaf plot.   STA: 10.A.3a
    TOP: Analyze data in a stem-and-leaf plot.
    KEY: Stem-and-Leaf plots | Analyzing data
44. ANS:
    yes; for example, the mean of 5, 10, 15, 20, and 95, which is 29, is much higher than the mean of 5, 10, 15, 20, 25, which is 15.

    PTS: 1   DIF: Advanced   REF: Lesson 8-9   OBJ: 8-9.2 Solve multi-step problems.
    TOP: Solve multi-step problems.   KEY: Multi-step | Problem solving
45. ANS:
    obtuse, scalene

    Solve for the third angle.
    180° − 43° − 35° = 102°
    The triangle contains an obtuse angle, and no equal sides. It is an obtuse, scalene triangle.

    PTS: 1   DIF: Average   REF: Lesson 10-4 OBJ: 10-4.2 Classify triangles.
    STA: 9.B.3   TOP: Classify triangles.   KEY: Triangles | Classifying triangles
46. ANS:
    acute, scalene

    Solve for the third angle.
    180° − 42° − 51° = 87°
    The triangle contains three acute angles and no equal sides. It is an acute, scalene triangle.

    PTS: 1   DIF: Average   REF: Lesson 10-4 OBJ: 10-4.2 Classify triangles.
    STA: 9.B.3   TOP: Classify triangles.   KEY: Triangles | Classifying triangles
47. ANS:
    rectangle

    The figure is a parallelogram with four right angles. It is a rectangle.

    PTS: 1   DIF: Basic   REF: Lesson 10-6
    OBJ: 10-6.1 Identify and classify quadrilaterals.   STA: 9.B.3
    TOP: Identify and classify quadrilaterals.
    KEY: Quadrilaterals | Identifying quadrilaterals

48. ANS:
    no lines of symmetry

    Sketch all lines that will produce identical figures when reflected over the line. The figure has no lines of symmetry.

    PTS: 1   DIF: Average   REF: Lesson 10-10
    OBJ: 10-10.1 Identify figures with line symmetry.   STA: 9.A.3c
    TOP: Identify figures with line symmetry.   KEY: Line symmetry | Symmetry

49. ANS:
    The tree is 17.5 feet tall.

    $$\frac{x}{28} = \frac{5}{8}$$
    $$28 \times 5 = 8x$$
    $$140 = 8x$$
    $$\frac{140}{8} = \frac{8x}{8}$$
    $$17.5 = x$$

    PTS: 1   DIF: Advanced   REF: Lesson 10-7   OBJ: 10-7.3 Solve multi-step problems.
    NAT: FP1   STA: 9.A.3c   TOP: Solve multi-step problems.
    KEY: Multi-step | Problem solving

50. ANS:
    $42\frac{7}{8}$ inches

    A heptagon has 7 sides, so its perimeter is $6\frac{1}{8} \times 7$, or $42\frac{7}{8}$.

    PTS: 1   DIF: Average   REF: Lesson 10-8   OBJ: 10-8.3 Solve multi-step problems.
    STA: 9.B.3   TOP: Solve multi-step problems.   KEY: Multi-step | Problem solving