Answers

1. standard form
2. value
3. count on
4. expanded form
5. 3,600
6. $5,000 + 10 + 8$
7. $9,000 + 300 + 5$
8. 5,952
9. 7 thousand or 7,000
10. tens
11. 8 hundreds or 800
12. less than
13. greater than
14. 1,584; 5,148; 5,184; 9,321
15. 3,456; Rule: Add 100.
16. 2,216; Rule: Subtract 1,000.
17. $8,142 - $6,219 = $1,923
    Mr. Richards. He has $1,923 more
    than Ms. Betty in the bank.
18. $20 × 5 = $100 (August to December)
    $1,500 + $100 = $1,600
    Peter will have $1,600 in December.

Test Prep 1

1. C
2. C
3. A
4. C
5. B
6. thirty-eight thousand, eleven
7. 10,000
8. 19,835; 34,201; 43,784; 91,476
9. >
10. 12,600
11. 75,310
12. 75,301
13. 13,570
14. 10,357; 10,375; 10,537; 10,573; 10,735
    or 10,753
15. 51,730; 15,730; 10,735; or 50,731

Pre-Test 2

1. 100
2. front-end estimation
3. round up
4. estimated
5. product
6. thousands
7. tens
8. 640
9. 3,900
10. $7,000 + 2,000 = 9,000$
11. $4,000 - 1,000 = 3,000$
12. 15
13. 15
14. 15
15. 24
16. 834
17. 1,650

Test Prep 2

1. C
2. D
3. B
4. C
5. D
6. 3,423; Answers vary.
7. 48
8. 3
9. Any two of these answers: 31; 37; 41; 43
10. 24
11. a. $783 - $346 = $437
    Mr. Smith needs $400 more, to the nearest
    hundred dollars, to buy the refrigerator.
    b. $800 - $783 = $17
    He received $17 in change.
12. 15th February

Pre-Test 3

1. skip counting
2. subtraction
3. remainder
4. Regrouping
5. 6, 5; 5, 5, 5, 5, 5, 5; 30
6. 9, 7; 7, 7, 7, 7, 7, 7, 7, 7, 7; 63
7. 4; 9, 9, 9, 9
8. 5; 6, 6, 6, 6, 6
9. 260
10. 801
11. 9 R 1
12. 13
13. 89 × 8 = 712
    There are 712 cards.
14. 265 × 3 = 795
    They have 795 beads altogether.
15. 45 ÷ 7 = 6 R 3
    6 bags are required. 3 apples will be left.

Test Prep 3

1. C
2. D
3. A
4. C
5. B
6. 3,032
7. 27,315
8. 287; Answers vary.
9. 4
10. 537
11. 1,608 ÷ 6 = 268
    1,608 - 268 = 1,340
    1,340 - 268 = 1,072
    Charlie has 1,072 stamps more than Ryan.
12. a. 3 × 4 = 12
    3 × 6 = 18
    3 + 12 + 18 = 33
    Mr. Jackson sold 33 computer monitors in
    three years.
    b. 33 × $185 = $6,105
    Mr. John earned $6,105.

Pre-Test 4

1. whole; parts   2. tally chart
3. picture graph
4.
Number of Books Sold

Fiction	Non-Fiction	Total
52	45	97

5.
Number of Milk Packets Sold

Day	Tally	Number
Mon	~~HHH~~ ///	8
Tues	////	4
Wed	~~HHH~~ ~~HHH~~ /	11

6. Friday   7. 24 L
8. 26 L − 17 L = 9 L
9. Between Monday and Tuesday.
10. 105 L   11. 29 L

Test Prep 4

1. C   2. D   3. D   4. C
5. A
6. 25

Class	Number of Boys	Number of Girls
Grade 4A	20	21
Grade 4B	19	23
Grade 4C	15	25
Grade 4D	25	13
Total Number	**79**	**82**

7. 82   8. Grade 4B
9. 5 minutes   10. 300 L − 100 L = 200 L
11. 2 P.M. to 3 P.M.   12. 200 − 30 = 170
13. $8,000 ÷ 2 = $4,000
    $4,000

14.

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008
Yearly Income ($)	8,000	10,000	20,000	6,000	10,000	22,000	18,000	30,000	38,000

Benchmark Assessment 1 for Chapters 1 to 4

1. C   2. D   3. C   4. A
5. C   6. A   7. D   8. C
9. A   10. B
11. eighteen thousand, three hundred six
12. 24,362; Answers vary.
13. 19,963   14. 1, 2, 7, 14
15. 26,016   16. 60
17. 374 R 1
18. a.

Name	$5		$10		Total
	Number	Amount	Number	Amount	
Clyde	3	$15	5	$50	$65
Zavier	5	$25	3	$30	$55

   b. Clyde has more money.
   c. Clyde has $10 more than Zavier.
19. a. 55,000 − 19,864 = 35,136
       35,136 milliliters of petrol was poured out of the tank.
    b. 35,136 ÷ 3 = 11,712
       11,712 milliliters of petrol was poured into each container.
20. The greatest common factor of 16 and 24 is 8. Cindy can divide the fruits into a maximum of 8 groups.
    Number of apples in each group = 16 ÷ 8
                                            = 2
    Number of oranges in each group = 24 ÷ 8
                                            = 3
    Cindy can make 8 groups of fruit, with 2 apples and 3 oranges in each group.
21. 11 units ➞ 33 marbles
    1 unit ➞ 33 ÷ 11 = 3 marbles
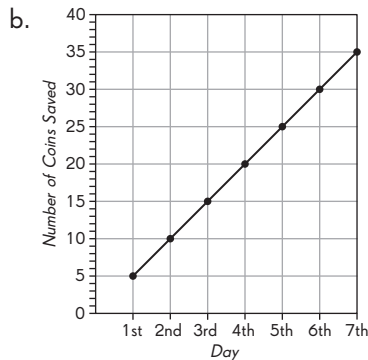   There are 3 blue marbles in the drawer.

1. 4 chickens + 1 goat = 12 legs
   $144 \div 12 = 12$
   $12 \times 4 = 48$
   There are 48 chickens.

2. a.

Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
		5	5 5	5 5 5	5 5 5 5	5 5 5 5 5	5 5 5 5 5 5

140
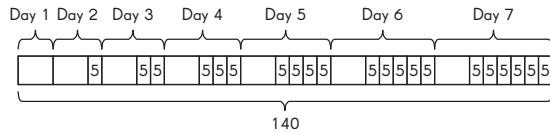
$21 \times 5 = 105$
$140 - 105 = 35$
7 units ➝ 35
1 unit ➝ 5
Samantha saved 5 coins on the first day.

b.

Pre-Test 5

1. number line
2. line plot
3. tally chart
4.

Color	Tally marks	Number of students
Red	////	4
Blue	⧸⧸⧸⧸ ///	8
Orange	⧸⧸⧸⧸ ⧸⧸⧸⧸	10
Yellow	⧸⧸⧸⧸ ////	9

5. Orange
6. 19
7. 4
8. 12
9. 1
10. 5
11. 7
12. 3
13. 35
14. 39 pages
15. 23 people
16. $4
17. 24

Test Prep 5

1. B
2. B
3. C
4. B
5. D
6. 108 grams
7. $\dfrac{6}{19}$
8. 0
   $55 + 60 + 67 + 73 + 78 + 96 = 429$
   $499 - 429 = 70$
9. 3
   $2 + 4 = 6$
   $6 \div 2 = 3$
10. 62 bicycles
11. $\$489 \times 2 = \$978$
    $\$978 \div 3 = \$326$
    $\$326 \times 2 = \$652$
    Mr. Logan has $652.
12. a. 30
    b. 20

Pre-Test 6

1. like
2. simplest form
3. equivalent fractions
4. fraction of a set
5. $\dfrac{1}{3}$; $\dfrac{1}{2}$; $\dfrac{2}{3}$
6. a. $\dfrac{3}{5}$ b. $\dfrac{3}{4}$
7. a. $\dfrac{1}{2}$ b. $\dfrac{3}{7}$
8. a. 6 b. 8
9. $\dfrac{2}{5} \times 40 = 16$
   16 boys are in the class.
10. $\dfrac{1}{5} + \dfrac{2}{5} = \dfrac{3}{5}$
    They ate $\dfrac{3}{5}$ of the cake altogether.
11. $1 - \dfrac{7}{8} = \dfrac{1}{8}$
    She has not read $\dfrac{1}{8}$ of the book.

Test Prep 6

1. B
2. B
3. A
4. C
5. D
6. $3\frac{1}{5}$
7. $\frac{27}{8}$; $\frac{37}{8}$
8. $1\frac{3}{8}$
9. $\frac{3}{8}$
10. $1 - \frac{2}{5} = \frac{3}{5}$

    $\frac{3}{5} \times 20 = 12$

    12 ribbons are not polka-dotted.
11. $\frac{2}{5} + \frac{7}{10} + \frac{3}{5} = \frac{4}{10} + \frac{7}{10} + \frac{6}{10}$

    $\qquad\qquad = \frac{17}{10}$

    $\qquad\qquad = 1\frac{7}{10}$

    The total weight of the 3 bags is $1\frac{7}{10}$ pounds.

Mid-Year Test

1. B
2. A
3. B
4. C
5. A
6. C
7. B
8. D
9. C
10. D
11. 9
12. $30,000 + 2,000 + 200 + 10 + 6$
13. ten thousands
14. 70
15.

Classes	Number of Students		Total Number
	Boys	Girls	
A	21	12	33
B	16	14	30
C	18	18	36
Total	55	44	99

16. a. 11   b. $\frac{4}{9}$
17. $\frac{1}{4}$
18. equally likely; 4 out of the 8 numbers on the spinner are divisible by 3.
19. 2 pounds $= \frac{16}{8}$ pounds

    $\frac{16}{8} - \frac{3}{8} = \frac{13}{8}$

    $\qquad\qquad = 1\frac{5}{8}$

    $1\frac{5}{8}$ pounds of the butter is left.
20. $4,564 \div 7 = 652$

    $4,564 - 652 = 3,912$

    $3,912 - 652 = 3,260$

    3,260 milliliters more water was used.
21. $21 + 28 + 32 = 81$

    $81 \div 3 = 27$

    The average weight of the three dogs is 27 pounds.
22. $4 \times 29 = 116$

    $116 - 81 = 35$

    The weight of the fourth dog is 35 pounds.
23.

Boys	25¢ coins		50¢ coins		Total
	Number	Amount	Number	Amount	
Brandon	12	$3	9	$4.50	$7.50
Sam	6	$1.50	7	$3.50	$5.00

24. a. Brandon has more money.

    b. Brandon has $2.50 more than Sam.
25. Brandon should give two 50¢ coins and one 25¢ coin to Sam.

Bonus Questions

1. Height after 1st rebound $= \frac{4}{5} \times 200$

    $\qquad\qquad\qquad = 160$ cm

    Height after 2nd rebound $= \frac{4}{5} \times 160$

    $\qquad\qquad\qquad = 128$ cm

    Height after 3rd rebound $= \frac{4}{5} \times 128$

    $\qquad\qquad\qquad = 102\frac{2}{5}$ cm

    The ball will rebound to a height of $102\frac{2}{5}$ centimeters after the third rebound.

2. Side of square $= 6$ cm
   Width of rectangle $= 6 - 5$
   $\quad\quad\quad\quad\quad\quad = 1$ cm
   Length of rectangle $= 6 + 2$
   $\quad\quad\quad\quad\quad\quad = 8$ cm
   The length and width of the rectangle are
   8 centimeters and 1 centimeter respectively.

Pre-Test 7

1. equivalent
2. denominator
3. numerator
4. rounded; ten
5. 250
6. 790
7. 680
8. 360
9. 500
10. 300
11. 100
12. 900
13. 25
14. 10
15. 5
16. 3

17. $\frac{3}{5}, \frac{1}{2}, \frac{4}{10}$

18. $\frac{5}{10}, \frac{1}{4}, \frac{3}{20}$

Test Prep 7

1. C
2. A
3. D
4. B
5. 5.76
6.

7. 0.5 liter
8. 1.46; 1.40
9. 1.6
10. 0.06, 0.5, 0.4, 0.75, 0.33
    $\frac{3}{4}, \frac{5}{10}$, 4 tenths, $\frac{33}{100}$, 6 hundredths

Pre-Test 8
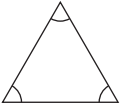
1. regroup
2. tens; ones
3. ones
4. hundredths; tenths
5. 1; 2; 1.2
6. 0; 1; 8; 0.18
7. 6; 2; 1; 62.1
8. 1; 5; 0; 1.50
9. 3; 0; 2; 3.02

142   Answers

Test Prep 8

1. B
2. B
3. D
4. A
5. B
6. 110.15
7. 61.05
8. 6.90 kilometers
9. $11.25
10. 4.55 meters
    Ben: 1.5 meters, Charles: 1.62 meters,
    Cindy: 1.43 meters
11. $3.57 + 2.97 = 6.54$ ft
    $15.00 - 6.54 = 8.46$ ft
    $8.46 \div 3 = 2.82$ ft
    The third piece of rope is $2.82 + 2.97$
    $= 5.79$ feet long.
12. On the fifth day of Linda's saving, Tyron's
    savings will be more than Linda's.
    $5 \times \$1.55 = \$7.75$
    Money Linda will have saved on the 5th day
    $= \$7.75$
    Money Tyron saves on his first day of saving
    $= 1 \times \$3.90$
    $= \$3.90$
    Money Tyron saves on his second day of saving
    (5th day for Linda) $= 2 \times \$3.90$
    $\quad\quad\quad\quad\quad\quad\quad\quad\quad = \$7.80$
    Tyron's savings will be more than Linda's
    on the fifth day since Linda started saving.

Day	Linda	Tyron
1	$1.55	–
2	$3.10	–
3	$4.65	–
4	$6.20	$3.90
5	$7.75	$7.80

Pre-Test 9

1. point

2. line

3. line segment

4. angle

5. a. No.
   The two line segments do not meet.
   b. Yes.
   The two line segments meet at a common endpoint.
   c. No.
   The two line segments do not meet.

6. a. ∠ABC or ∠CBA
   b. ∠XYZ or ∠ZYX

7. a.

   b.

8. a. Yes
   b. No.
   The line segments meet to form an angle that measures more than 90°.
   c. No.
   The line segments meet to form an angle that measures less than 90°.

9. a. ∠P; ∠S
   b. ∠Q (38°); ∠T (82°)
   c. ∠R (106°)

Test Prep 9

1. A
2. C
3. D
4. C
5. A
6. ∠QPR or ∠RPQ
7. 67°
8.
9. half
10.

11. a. right angle
    b. straight angle
    c. obtuse angle
    d. acute angle

12. $\overline{AC}$

Pre-Test 10

1. Parallel

2. distance

3. Perpendicular, right angle

4. a. Parallel
   b. Neither
   c. Perpendicular

5. parallel

6. perpendicular

7. parallel

8. perpendicular

9. The perpendicular line segments are $\overline{GF}$ and $\overline{FE}$.
   The parallel line segments are $\overline{BG}$ and $\overline{DE}$.

10. The perpendicular line segments are $\overline{LK}$ and $\overline{KJ}$ or $\overline{MF}$ and $\overline{FG}$.
    The parallel line segments are $\overline{FG}$ and $\overline{HI}$.

11.

12.

Test Prep 10

1. B
2. D
3. B
4. A
5. C
6. $\overline{CD}$ and $\overline{BE}$

7. a.

b.

8. a.

b.

9.
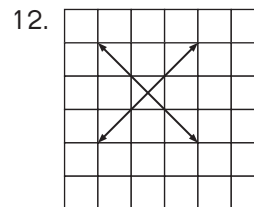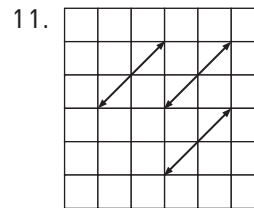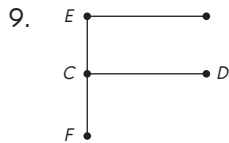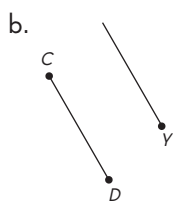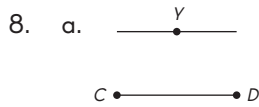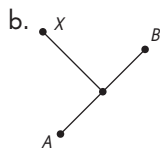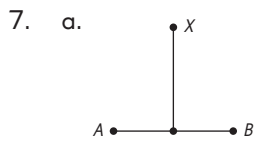
10. a. and b.
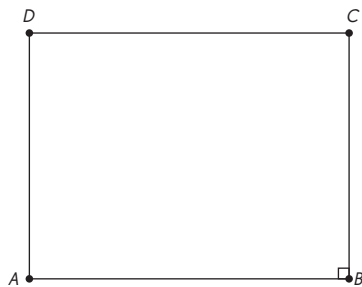
c. They are perpendicular.

d. rectangle

11. Parallel lines: $\overline{AE}$ and $\overline{BC}$; $\overline{GJ}$ and $\overline{HI}$; $\overline{HK}$ and $\overline{JL}$; $\overline{GH}$ and $\overline{JI}$; $\overline{AB}$ and $\overline{GH}$; $\overline{AB}$ and $\overline{JI}$; $\overline{EC}$ and $\overline{JL}$;

Perpendicular lines: $\overline{AE}$ and $\overline{AB}$; $\overline{AB}$ and $\overline{BC}$; $\overline{BD}$ and $\overline{GH}$; $\overline{GJ}$ and $\overline{GH}$; $\overline{GJ}$ and $\overline{JI}$; $\overline{GH}$ and $\overline{HI}$ or $\overline{HI}$ and $\overline{JI}$

1. square; rectangle

2. length

3. parallel

4. right angles

5. perpendicular

6. rectangle

7. square

8. rectangle

9. square

10.

11.

 OR

12.
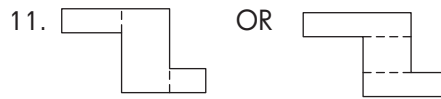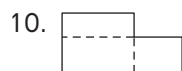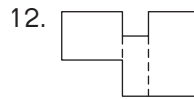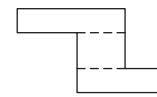
13. $\overline{CD} \perp \overline{DE}$; $\overline{AF} \perp \overline{EF}$
    $\overline{BC} \parallel \overline{FE}$

14. $\overline{AD} \perp \overline{AB}$; $\overline{AD} \perp \overline{CD}$; $\overline{AB} \perp \overline{BC}$; $\overline{CD} \perp \overline{BC}$
    $\overline{AB} \parallel \overline{CD}$; $\overline{AD} \parallel \overline{BC}$

1. C
2. D
3. C
4. C
5. D
6. 8 yd
7. 73°
8. 10 cm
9. a = 53°; b = 79°; c = 90°
10. 11 cm
11. 18 cm
12. 68°

1. D
2. B
3. B
4. C
5. B
6. B
7. A
8. B
9. A
10. D
11. 6.2
12. 11.35
13. 21.25

14. Kris's height = 1.63 − 0.07
                  = 1.56 m
    Shelly's height = 1.56 − 0.18
                    = 1.38 m
    Kris is 1.56 meters tall; Shelly is 1.38 meters tall.

15. ∠PQR or ∠RQP; 103°

16. It is an obtuse angle.
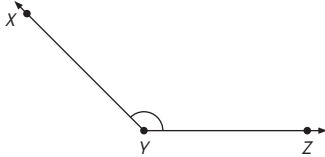
17.
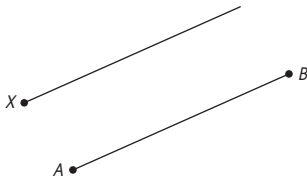
18.
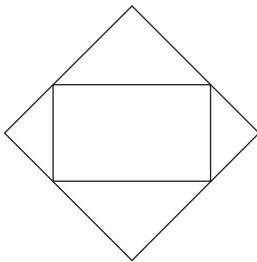
19. 7 cm

20. 29°

21. $1\frac{1}{5}$ = 1.2

    1.2 + 3.68 = 4.88 lb
    4.88 when rounded to the nearest tenth of a pound is 4.9 pounds.
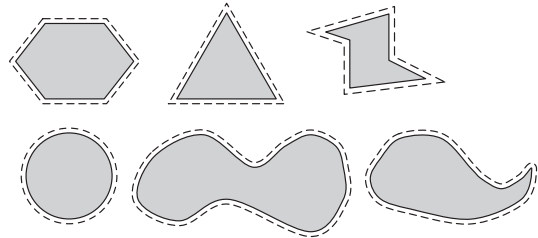   The total weight of the fruits is about 4.9 pounds.

22. Answers vary. Sample:

23.
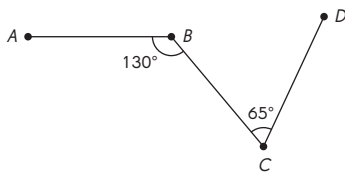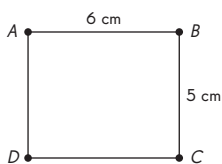
1. a. 2.1 + 6.04 = 8.14
    b. 58.46 × 100 = 5,846
    c. 89.6 − 1.25 = 88.35

2. Heuristic
    Skills: Following directions; Spatial Visualization
    $\overline{BC}/\overline{AD}$; parallel

1. perimeter
2. surface
3. Square units
4. Square inch; square kilometer
5. area
6. 6; 7; 7; 7; 7; 7; 7; 7; 42; 42
7.

8. 16
9. 15
10. 38
11. 39
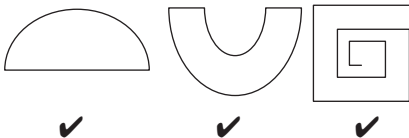
1. D
2. C
3. C
4. C
5. C
6. 32 cm
7. Accept any answer between $19\frac{1}{2}$ units² to $21\frac{1}{2}$ units².
8. 34 in.
9. 18 cm

10. a. $10 - (\frac{1}{2} + \frac{1}{2}) = 9$ ft

$9 - (\frac{1}{2} + \frac{1}{2}) = 8$ ft

$9 \times 8 = 72$ ft^2
b. $72 \times \$5 = \$360$

11. From the diagram, the side length of the larger square is 4 times that of the smaller squares.
Area of larger square ⟶ 4×4
$= 16 \times$ Area of smaller squares
Total area of figure ⟶ $16 + 4$
$= 20 \times$ Area of smaller squares
$= 980$ in.^{2}
Area of 1 smaller square $= 980 \div 20$
$= 49$ in.^{2}
Length of 1 smaller square $= 7$ in.
Length of larger square $= 4 \times 7$
$= 28$ in.
Unknown length $= 28 + 7 = 35$ in.
The unknown length is 35 inches.

12. Area of rectangular piece of paper $= 20 \times 6$
$= 120$ cm^2
Area of 1 folded corner $= \frac{1}{2} \times 6 \times 6$
$= 18$ cm^2
Area of 2 folded corners $= 18 \times 2$
$= 36$ cm^2
Area of figure formed $= 120 - 36$
$= 84$ cm^2
The area of the folded figure is 84 square centimeters.

Pre-Test 13

1. polygons
2. congruent
3. symmetry
4.
   ✔   ✔   ✔
5. A and I; E and G; C and J
6. A; B; D; G

1. D   2. D
3. B   4. D
5. A
6.   Figure B
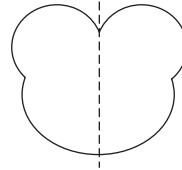
7. Answers vary. Sample:
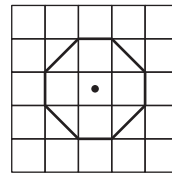
8. Answers vary. Sample:
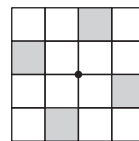
9.
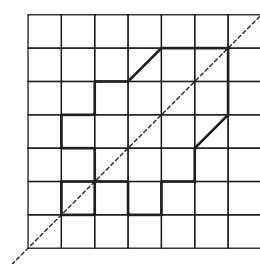
10.

11. Answers vary. Sample:
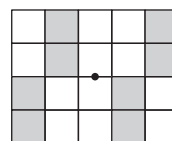
12. Yes
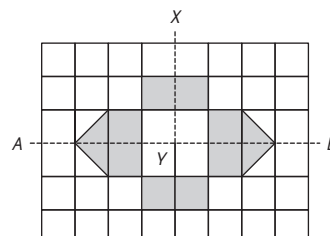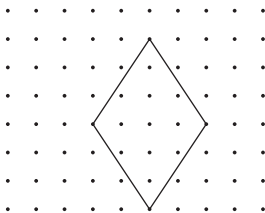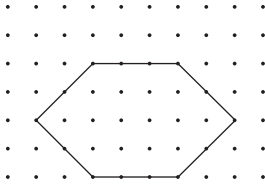
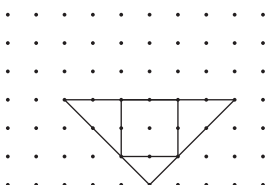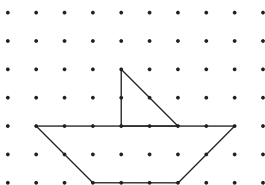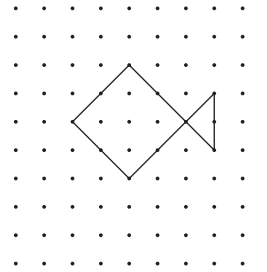## Pre-Test 14

1. pattern; rotations
2. dot paper
3. polygon
4.
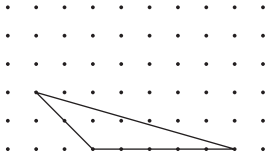
5.

6.

7.

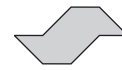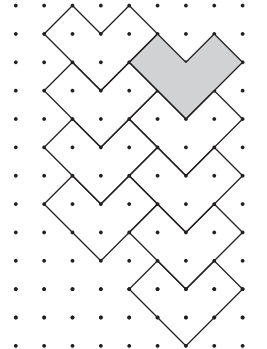8.

9.
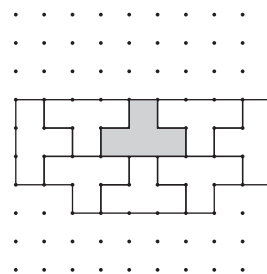
Test Prep 14

1. A
2. C
3. B
4. C
5. B
6.

7. Answers vary. Sample:
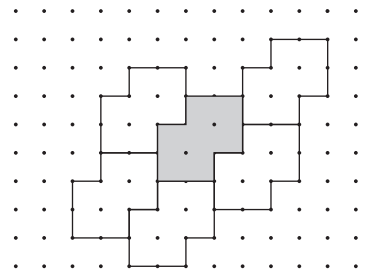
8. Answers vary. Sample:

9. Answers vary.
10. Answers vary.
11.

12.
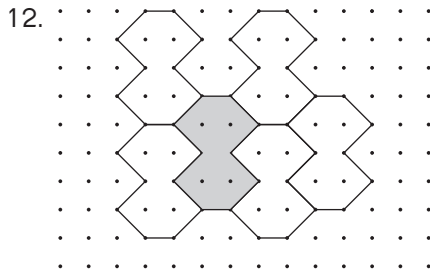
13. The shape is tessellated by sliding and flipping.

1. D
2. C
3. D
4. A
5. C
6. B
7. B
8. A
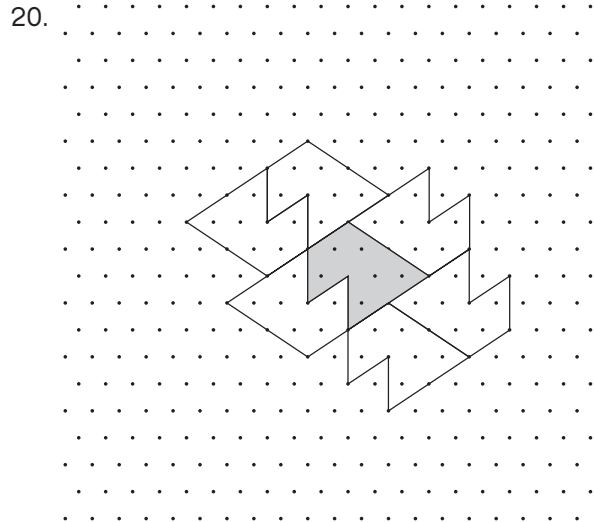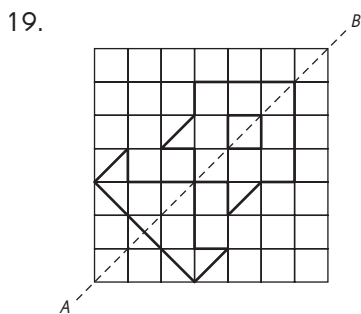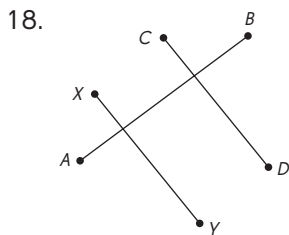9. C
10. A

11. 18,300; 18,950

12. 24

13. a. From Week 1 to Week 2.
    b. $280

14. a. 28 − 8 = 20
    b. 7

15. $\dfrac{9}{16}$

16. $\dfrac{137}{20}$

17. Draw an angle *STU* that measures 82°.

18.

19.

20.

21. Ms. Kelly's salary = $3,640 × 3
                     = $10,920

    $10,920 − $7,184 = $3,736

    2 units → $3,736

      1 unit → $3,736 ÷ 2 = $1,868

    Ms. Kelly saved $1,868 in February.

22. Total mass carried by 6 workers = 6 × 15
                                  = 90 kg

    Total mass carried by 9 workers = 9 × 18
                                  = 162 kg

    Mass carried by 3 new workers = 162 − 90
                               = 72 kg

    Mass carried by each of the 3 new workers
                         = 72 ÷ 3
                         = 24 kg

    Each of the 3 new workers carried 24 kilograms of building material.

23. Length of wall = $6 + \dfrac{1}{2} + \dfrac{1}{2}$
                   = 7 ft

    Width of wall = $2 + 1\dfrac{1}{2} + 1\dfrac{1}{2}$
                  = 5 ft

    Area of wall = 7 × 5
                = 35 ft²

    Area of painting = 6 × 2
                    = 12 ft²

    Area of wall not covered by painting
                         = 35 − 12
                         = 23 ft²

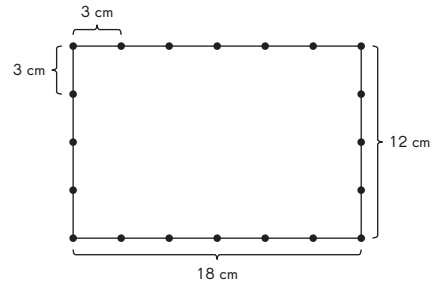   23 square feet of the wall is not covered by the painting.

Bonus Questions

1.

Thinking skill: Spatial Visualization
Strategy: Use a diagram/model
A rectangle 15 cm $\times$ 9 cm
Area of rectangle = 135 cm^2

2.

3 cm

3 cm

12 cm

18 cm

Thinking skill: Spatial Visualization
Strategy: Use a diagram/model
Mary needs 20 pebbles.