Application and Enrichment 1G

wind-up mouse

1. Final answer is 120 (given).
2. Final answer is 486.
3. Final answer is 280.
4. Final answer is 576.

Application and Enrichment 2G

space shuttle

1. 10
2. 9
3. 2
4. 5
5. 2
6. 5
7. 1
8. 10
9. 3
10. 5
11. 2
12. 2
13. 4
14. 3
15. 2
16. 1
17. 4
18. 5
19. 8
20. 7

Application and Enrichment 3G

boat

1. divide
2. multiply
3. divide
4. divide
5. multiply

Application and Enrichment 4G

music box figure

1. 5A = 15 or 15 ÷ 5 = A
   A = 3
2. 3B = 30 or 30 ÷ 3 = B
   B = 10
   Students may use any letter they like for the unknown.
3. 2D = 12 or 12 ÷ 2 = D
   D = 6
4. 8H = 80 or 80 ÷ 8 = H
   H = 10

Application and Enrichment 5G

1. line segment —
2. point •
3. ray →
4. line ↔
5. point
6. line segment
7. ray
8. line

Application and Enrichment 6G

clock

These answers may be in any order:
8 × 3, 6 × 4, 4 × 6, 3 × 8

Application and Enrichment 7G

6 inches × 4 inches = 24 square inches

Application and Enrichment 8G

airplane

1. Put a black X on the four shapes that do not have four sides.
2. Five parallelograms; they all have two sets of parallel sides.
3. Three rectangles; they all have four right angles.

4. One square; all four sides are the same length.
   The unmarked figure is a trapezoid.

Application and Enrichment 9G

1. 90° + 90° + 90° + 90° = 360°
   Yes
2. 3 × 45° = 135° or 45° + 45° + 45° = 135°
   Smaller angles may be added to find the measure of larger angles.

1. There are two obtuse angles.
2. There are two right angles.
3. Use the definitions to check the angles. They may be turned in any direction.
4. 90° – 75° = 15°, so D = 15°

Application and Enrichment 10G

hot air balloon

1. always
2. more likely
3. always
4. never
5. less likely

Application and Enrichment 11G

1. Smith:
   1 + 2 + 7 + 10 = 20; 20 ÷ 4 = 5
   Jones:
   4 + 5 + 6 = 15; 15 ÷ 3 = 5
   Smith = Jones
2. Chloe:
   6 + 7 + 8 = 21; 21 ÷ 3 = 7
   Tucker:
   1 + 2 + 12 = 15; 15 ÷ 3 = 5
   Chloe > Tucker
3. Timothy:
   1 + 2 + 3 = 6 ÷ 3 = 2
   Peter:
   0 + 2 + 10 = 12; 12 ÷ 3 = 4
   Timothy < Peter

number of row	1	2	3	4	5	6	7	8
number of boxes in that row	1	2	3	4	5	6	7	8
total number of boxes	1	3	6	10	15	21	28	36

1. They are the same.
2. Sample answers: Add the number of boxes in each new row to the total number of boxes in the previous rows; look at the bottom row and add a number that is one more each time: 1 + **2** = 3, 3 + **3** = 6, 6 + **4** = 10, 10 + **5** = 15, etc. (There may be other ways to describe the patterns in the chart.)

number of triangles	1	2	3	4	5	6	7
number of toothpicks	3	5	7	9	11	13	15

3. 13 toothpicks
4. 21 toothpicks. Sample answers: Each new triangle needs two more toothpicks; double the number of triangles and add one to find the number of toothpicks needed. (Experimenting with this is more important than finding the exact answer without help.)

Application and Enrichment 12G

carousel

1. subtract
2. divide
3. multiply
4. add
5. divide

Application and Enrichment 13G

tractor

1. 16 new blocks
2. 24 new squares
3. 32 new squares
4. After the first step, skip count by 8.

Application and Enrichment 14G

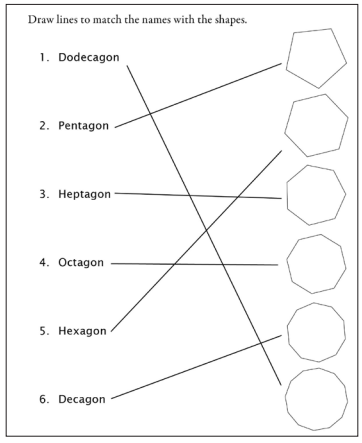
1. 8 quadrilaterals
2. 1 trapezoid (is also a quadrilateral)
3. 6 parallelograms (are also quadrilaterals)
4. 4 rectangles (are also parallelograms)
5. 2 squares (are also rectangles)
6. the triangle on the bottom right

1. 6 circles total
2. 10 circles total
3. 15 circles total
4. Sample answer: Add the number of the step to the total number of previous circles to get the new total. (There may be other ways to describe the pattern.)

Application and Enrichment 15G

sky - blue; grass - green; castle and sun - yellow; castle door - brown; taller buildings - orange; shorter buildings - tan

Use the chart to match names with the correct number of sides.



Application and Enrichment 16G

1. 2 squares
2. 18 ÷ 4 = 4 r.2
3. Answers will vary.
4. 1 square
5. 16 ÷ 5 = 3 r.1
6. Answers will vary.

1. 50 ÷ 7 = 7 r.1
   Each neighbor gets 7 with 1 left over. It could be cut up and divided or given to someone else; Riley could also keep it. She could give it to one of the seven neighbors, but the shares would no longer be even.
2. 28 ÷ 5 = 5 r.3
   Since pets cannot be cut up into pieces, he will need an extra cage for the remainder. Therefore, 6 cages are needed, but one cage will have 3 pets, not 5 pets.

3. 32 ft ÷ 3 ft = 10 pieces r. 2 (You must first change 1 yd to 3 ft.) Ten pieces are 3 ft or 1 yd long. The leftover piece is 2 ft long.
4. 17 ÷ 4 = 4 r.1
   Each sister gets 4 things if Julia wants to divide evenly. There is 1 thing left over. If it is something that could be cut, she could cut it into 4 equal pieces and give one to each sister.
5. 32 ÷ 6 = 5 r.2
   Jeff will need 6 shelves to hold all of the items in his collection. One shelf will have only 2 items.

Application and Enrichment 17G

Across

1. quotient
3. round
4. base
7. parallel
10. rectangle
11. right
12. divisor
13. perimeter

Down

2. triangle
5. factor
6. areas
8. average
9. height

1. 20, 20, 20, 20
2. They are all the same.
3. 1 + 19 = 20
4. 6 + 14 = 20
5. 2, 4, 6, 8 Skip count by 2.
6. 10 – 0 = 10
7. 40, 80, 120, 160
   Sample answers: Each number is 40 more than the one before; skip count by 10 to find the second factors in the problems.
8. 4 × 50 = 200
   4 × 60 = 240

Application and Enrichment 18G

Division problems

5 ÷ 2 = 2 r.1
17 ÷ 6 = 2 r.5
39 ÷ 10 = 3 r.9
19 ÷ 5 = 3 r.4
55 ÷ 7 = 7 r.6
39 ÷ 8 = 4 r.7
20 ÷ 3 = 6 r.2
53 ÷ 9 = 5 r.8
35 ÷ 4 = 8 r.3

The numbers under the letters are (in order):

1, 5, 9, 4, 6, 7, 2, 8, 3

Solution: I can do long division.

1. small triangles: 8
   larger triangles with the sides of the square as bases: 4
   large triangle with diagonals as bases: 4
   8 + 4 + 4 = 16 triangles
2. 10 squares
   16 triangles (see #1) + 16 triangles inside smaller square = 32 triangles

Application and Enrichment 19G

1–4. done

1. 60 miles
2. 9 days
3. 9 days
4. no
5. Day 7 on the graph; traveled for 2 days (7 – 5 = 2)
6. no

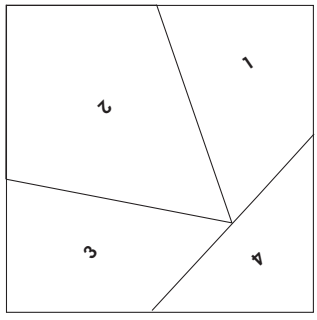
Application and Enrichment 20G

1. top: 2, 4, 6, 8, 10, 12
   bottom: 7, 9, 11, 13, 15, 17
2. top: 1, 3, 9, 27, 81, 243
   bottom: 0, 2, 8, 26, 80, 242
3. top: 5, 10, 15, 20, 25, 30
   bottom: 6, 12, 18, 24, 30, 36
4. top: 2, 4, 6, 8, 10, 12
   (skip count by 2)
   bottom: 5, 7, 9, 11, 13, 15
   Sample answers: Add 3 to top number; add 2 to previous bottom number.
5. top: 3, 6, 9, 12, 15, 18, 21, 24
   (skip count by 3)
   bottom: 2, 5, 8, 11, 14, 17, 20, 23
   Sample answers: Subtract 1 from top number; add 3 to previous bottom number.

1. 2008
2. Country A
3. Production went down sharply and then began a steady increase.
4. no

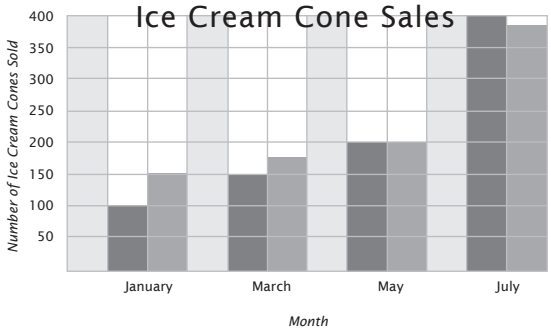
Application and Enrichment 21G

This is called the "Haberdasher's Puzzle."



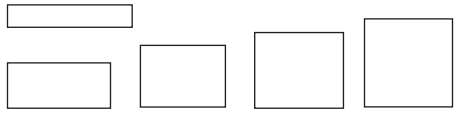
Application and Enrichment 22G

1. 6 ≥ 3; girls ate more
2. 8 – 4 = 4 more hot dogs
3. no



Application and Enrichment 23G

1.



2. 1 ft × 9 ft = 9 sq ft; 2 ft × 8 ft = 16 sq ft; 3 ft × 7 ft = 21 sq ft; 4 ft × 6 ft = 24 sq ft; 5 ft × 5 ft = 25 sq ft
3. The rectangle that is 1 unit × 9 units has the least area.
4. The rectangle that is 5 units × 5 units has the greatest area.

1. An extra pen will be needed.
2. Depending on what Sue made, she could divide the leftovers or save the remainder for herself or for some other purpose.
3. Write the remainder over the divisor to make a fraction.

Application and Enrichment 24G

no solutions

Application and Enrichment 25G

1. yes, yes, no, yes, yes
2. yes, for the purposes of this lesson (Most faces are slightly different on each side.)
3. no
4. Answers will vary.

1. top: 9, 18, 27, 36, 45, 54, 63, 72 (skip count by 9)
   bottom: 3, 6, 9, 12, 15, 18, 21, 24 (skip count by 3)
   Also, you can divide the top number by 3 to get the bottom number.
2. top: 2, 3, 4, 5, 6, 7, 8, 9 (count by 1)
   middle: 4, 6, 8, 10, 12, 14, 16, 18 (skip count by 2)
   bottom: 6, 9, 12, 15, 18, 21, 24, 27 (skip count by 3)
   Also, each column skip counts by the number in the top row.
3. top: 20, 19, 18, 17, 16, 15, 14, 13 (subtract 1 each time)
   bottom: 20, 21, 22, 23, 24, 25, 26, 27 (add 1 each time)
   The difference between the top and bottom rows is 2 more each time.
4. Answers will vary.

Application and Enrichment 26G

The leaf is symmetrical around the line of the fold.

Application and Enrichment 27G

Pan 1: (15" × 15") × 3" = 225" × 3" = 675 cubic inches
Pan 2: (12" × 12") × 3" = 144" × 3" = 432 cubic inches
Pan 3: (9" × 9") × 2" = 81" × 2" = 162 cubic inches
Pan 4: (6" × 6") × 4" = 36" × 4" = 144 cubic inches

675 cu in + 432 cu in + 162 cu in + 144 cu in = 1,413 cubic inches total volume

Answers will vary.

Application and Enrichment 28G

First line: 3, 6, 9, 12, 15, 18, 21, 24, 27
Second line: 1, 2, 3, 4, 5, 6, 7, 8, 9
Under letters: 1, 2, 3, 4, 5, 6, 7, 8, 9
Solution: All roads lead to Rome.

Unscrambled words in order:
square, triangle, trapezoid, area, average, bases, height, ounces, divided, sixteen

The triangle may be on any side of the square and have any proportions, but the overall shape must be a trapezoid.

Application and Enrichment 29G

horse and chariot

1. 55
2. 385
3. 160

Application and Enrichment 30G

1. 3 × 1,000 m = 3,000 m
2. 2 × 1,000 L = 2,000 mL
3. 500 ÷ 100 = 5 m

600 cm = 6 m
3,000 mL = 3 L
2,000 m = 2 km