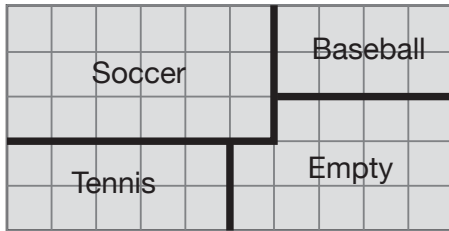# Covering Regions

For **1** through **4**, use the diagram below.

Athletic Field

1. What is the area of the soccer section of the field? _____

2. What is the area of the field that is NOT being used? _____

3. How many square units of the field are being used?_____

4. If the school used the soccer and baseball fields to build a football stadium, how large could the area of the stadium be?

   _____

5. What is the area of the shaded section?
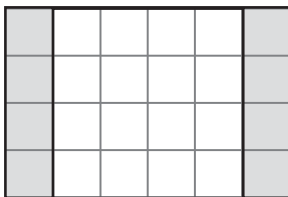
   A 16 square units   **B** 12 square units **C** 8 square units   **D** 4 square units

6. What is the area of the hexagon shown below? Explain.

   _____

   _____
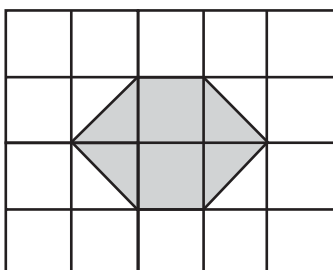
Area and Units

1. Use a ruler to draw a figure with an area of 3 square centimeters.

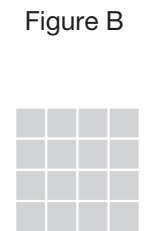**2.** Which of these figures has an area of 16 square inches?

Figure A   Figure B
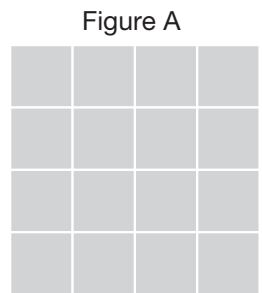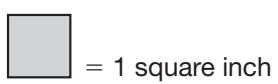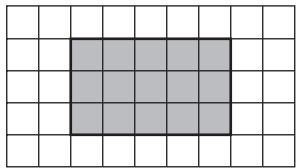
☐ = 1 square inch

Figure _____

3. **Draw a Picture** Maya made a sign with an area of 48 square centimeters. Use centimeter grid paper to draw a shape that shows what her sign could look like.

4. Suppose Maya made another sign with an area of 48 square inches. Would this sign be larger or smaller than the sign with an area of 48 square centimeters? Explain how you know.

_____

_____

_____

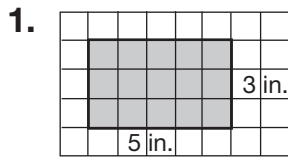**5.** What is the area of this figure in square centimeters?

☐ = 1 square centimeter

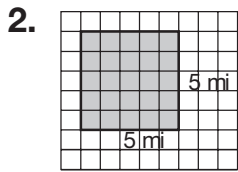**A** 12   **B** 14   **C** 15   **D** 17

Standard Units

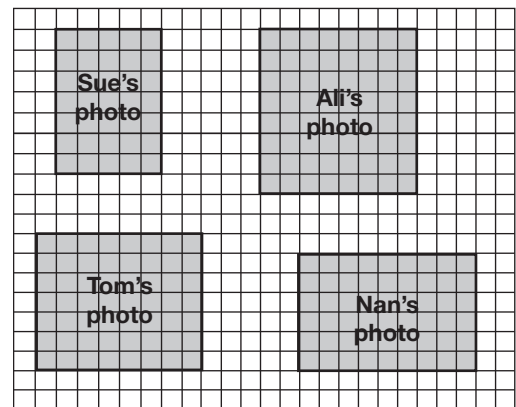For **1** through **3**, count the square units. Then write the area.

1.

3 in.

5 in.

_____

_____

2.

5 mi

5 mi

_____

_____

3.

2 cm

4 cm

_____

_____
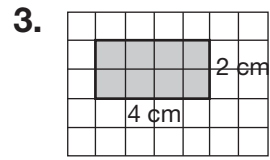
Use the diagram of the bulletin board for **4** through **6**.

4. What is the area of each student's photo?

_____

_____

_____

_____

Sue's photo

Ali's photo

Tom's photo

Nan's photo
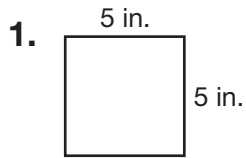
☐ = 1 square inch

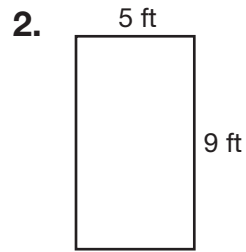**5.** What is the area of Sue's photo and Tom's photo?

A 80 square inches

C 90 square inches

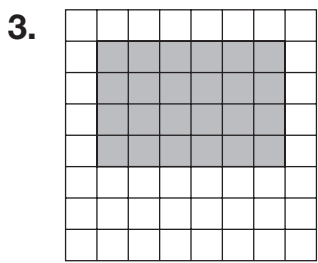**B** 81 square inches

D 91 square inches

6. Colleen's photo is 9 inches long and 7 inches wide. Is it larger or smaller than Ali's photo? Explain how you know.
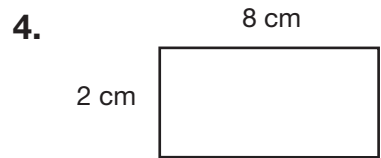
_____

_____
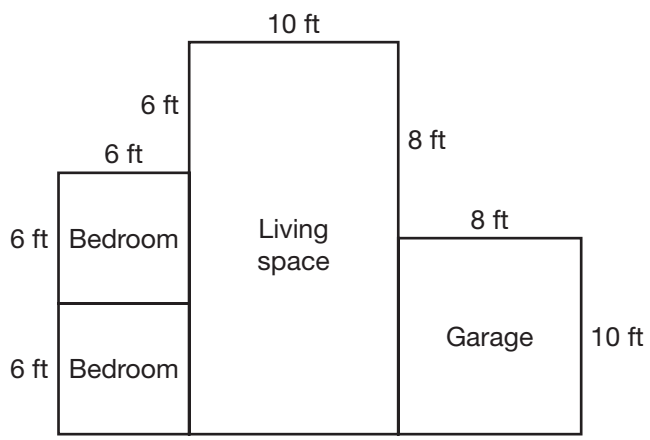
_____

Area of Squares and Rectangles

Find the area of each figure.

1.

5 in.

5 in.

_____

2.

5 ft

9 ft

_____

3.

_____

4.

8 cm

2 cm

_____

5. What is the area of one bedroom?

_____

6. What is the area of the garage?

_____

10 ft

6 ft

6 ft

8 ft

8 ft

6 ft | Bedroom

Living space
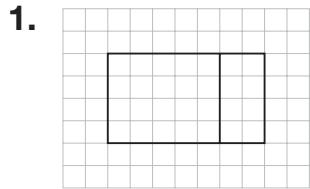
8 ft

6 ft | Bedroom

Garage | 10 ft

7. Which is the area of a rectangle with a length of 6 cm and a width of 9 cm?
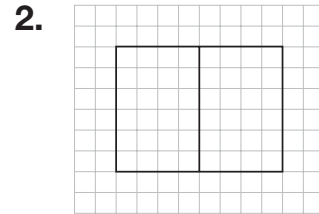
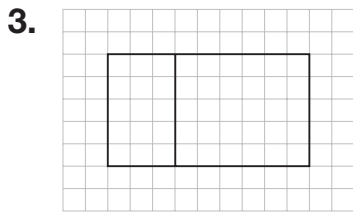**A** 63 square cm   **B** 54 square cm   **C** 45 square cm   **D** 36 square cm

8. **Writing to Explain** Explain how you would find the length of one side of a square if the area is 16 square units.

_____

Area and the Distributive Property
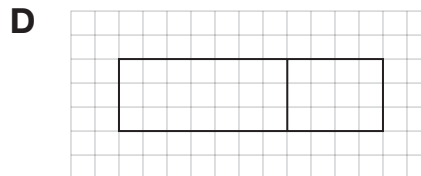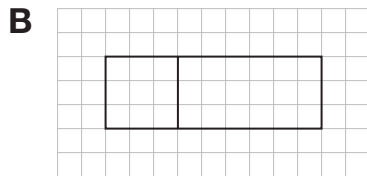
Write the equation that represents the picture.

1.

_____

_____

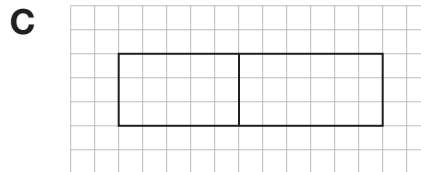**2.**

_____

_____

3.

_____

_____

Choose the picture the equation represents.

4. $3 \times 9 = 3 \times (3 + 6) = (3 \times 3) + (3 \times 6)$

A

C

B

D
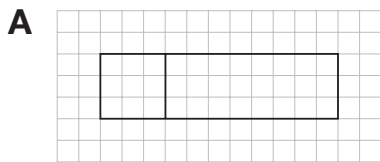
5. Reason Lee wants to cut this piece of canvas into two rectangles that are 3×2 and 3×5. He wants the sum of the areas of the two small rectangles to be the same as the area of the large rectangle. Can he do this? Explain.

6 feet

3 feet

_____

_____

_____
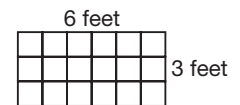
Problem Solving: Solve a Simpler Problem

Solve. Use simpler problems.

1. Ms. Finn is going to tile her kitchen floor. The shaded part of the figure is the part that needs to be tiled. What is the area of the shaded part?
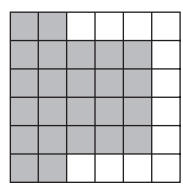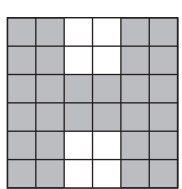
☐ = 1 square yard

2. Alice is going to paint one of the walls in her bedroom. The shaded part of the figure is the part that needs to be painted. What is the area of the shaded part?
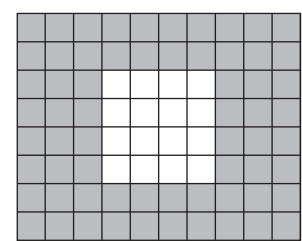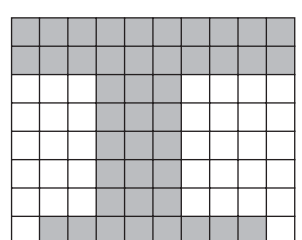
☐ = 1 square foot

3. Harrison High School has an H painted on the football field. The shaded part of the figure is the part that needs to be painted. What is the area of the shaded part?
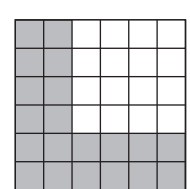
☐ = 1 square meter

4. Mr. Rosen is going to repair the tiles in a shower. The shaded part of the figure is the part that needs to be tiled. What is the area of the shaded part?

☐ = 1 square foot

5. Luann is going to paint an L on her fence. The shaded part of the figure is the part that needs to be painted. What is the area of the shaded part?
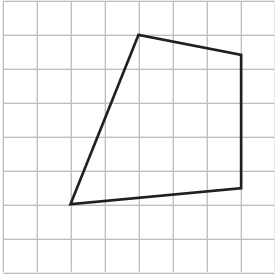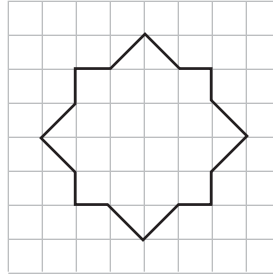
☐ = 1 square inch

Area of Irregular Shapes

Find the area of each shape.

1.
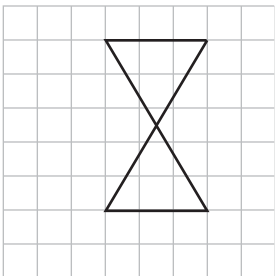

_____

2.

_____

3.

_____

4.

_____
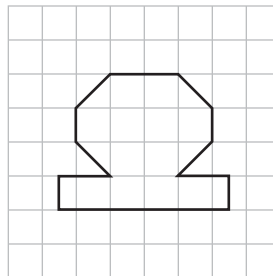
5.

_____

6.

_____

7.

_____
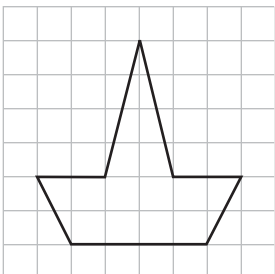
8.

_____
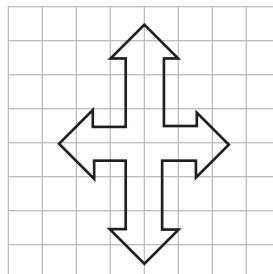
Same Area, Different Perimeter

For **1** through **9,** write "yes" if the 2 rectangles have the same area and "no" if they do not. If they have the same area, tell which one has the smaller perimeter.

1. 3   4
8 | A | 6 | B |

_____

2. 6   10
5 | C | 3 | D |

_____

3. 4   8
4 | E | 2 | F |

_____

4. 5   20
8 | G | 2 | H |

_____

5. 6   12
8 | I | 4 | J |

_____

6. 2   3
6 | K | 4 | L |

_____

7. 10   30
10 | M | 3 | N |

_____

8. 4   13
9 | O | 2 | P |

_____

9. 8   15
8 | Q | 1 | R |

_____
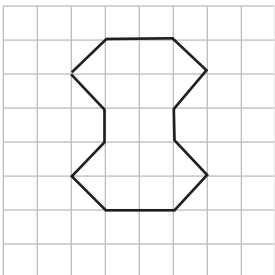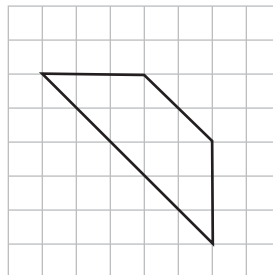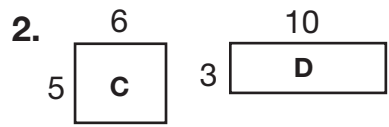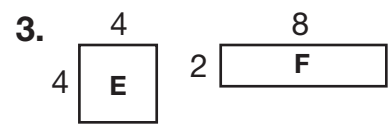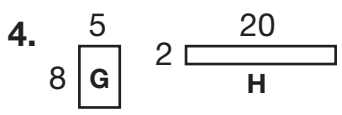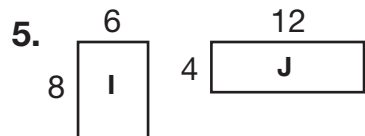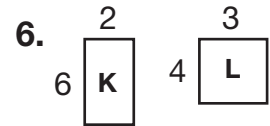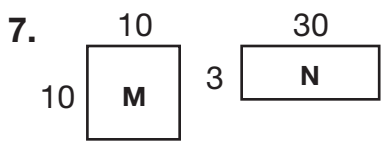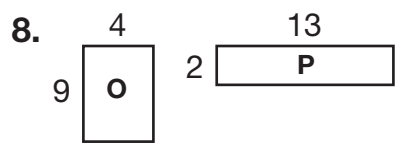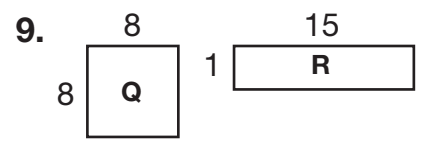
10. Two rectangles have an area of 36 square inches. Name two possible perimeters for the rectangles. _____

11. The length of a rectangle is 6 inches and the width is 5 inches. Which rectangle has the same area?

A   10
3 | ___ |

C   5
7 | ___ |

B   8
4 | ___ |

D   20
1 | ___ |

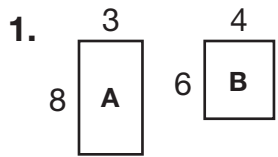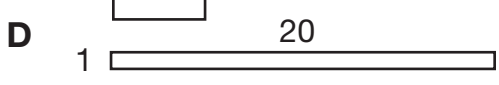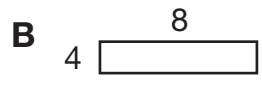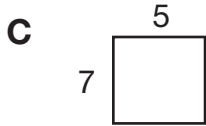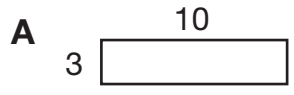**12. Writing to Explain** The area of a rectangle is 100 square inches. The perimeter of the rectangle is 40 inches. A second rectangle has the same area but a different perimeter. Is the second rectangle a square? Explain why or why not.

_____

_____

Equal Areas and Fractions

For **1** through **3**, show two ways to separate the rectangle into equal parts.

1. 4 equal parts

In each rectangle, what is the fraction that shows the area of one of the parts?

_____
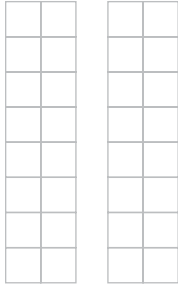
3. 6 equal parts

In each rectangle, what is the fraction that shows the area of one of the parts?

_____
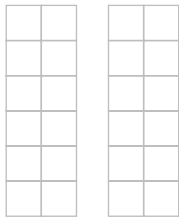
2. 3 equal parts

In each rectangle, what is the fraction that shows the area of one of the parts?

_____

4. Tom separated the rectangle shown below into 8 equal parts. What fraction shows the area of one of the parts?

_____
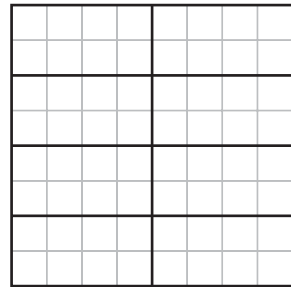
5. Mai drew the design shown below. Each square in the design has the same area. Which fraction shows the area of one of the squares?

A $\frac{1}{4}$ **B** $\frac{1}{3}$ **C** $\frac{1}{6}$ **D** $\frac{1}{8}$

Problem Solving: Selecting Appropriate Measurement Units and Tools

For **1** through **4,** name the measurement unit you would use to measure the area of each item.

1. blanket   **2.** New York City   **3.** table tennis table   **4.** vegetable garden

_____   _____   _____   _____

For **5** through **8,** name the measurement tool you would use to measure the area of each item.

5. roof of a building   **6.** pizza pie   **7.** movie screen   **8.** crayon box

_____   _____   _____   _____

_____   _____   _____   _____

9. Carl wants to measure the area of his kitchen floor. Which unit of measurement should he use?

  A Inches

  B Feet

  C Square inches

  D Square feet

10. Inez wants to find the area of a small photo. Which measurement tool should she use?

  A Inch ruler

  B Meter stick

  C Scale

  D Yardstick

11. Give an example of an area that you would measure in square miles.

_____

12. Jeremiah wants to use a meter stick to measure the dimensions of a magazine cover to find its area. Is that an appropriate measurement tool? Explain why or why not.

_____

_____

1. Which measurement tool is the best choice for measuring the area of a small picture frame? (14-10)

   A Balance scale

   B Meter stick

   C Yardstick

   (D) Inch ruler

2. Mr. Carter has 54 square tiles. How should he arrange them so that he has the smallest perimeter? (14-8)

   A 26 by 2 rectangle

   B 1 by 54 rectangle

   (C) 9 by 6 rectangle

   D 18 by 3 rectangle

3. A diagram of a stage is shown below. What is the area of the stage? (14-7)

   A 20 square feet

   B 28 square feet

   (C) 32 square feet

   D 36 square feet

4. Which unit of measurement is the best to use to measure the area of a school playground? (14-10)

   (A) Square feet

   B Square centimeters

   C Square inches

   D Square miles

5. What is the area of the figure shown below? (14-1)

    A 12 square units

    B 15 square units

    C 18 square units

    D 21 square units

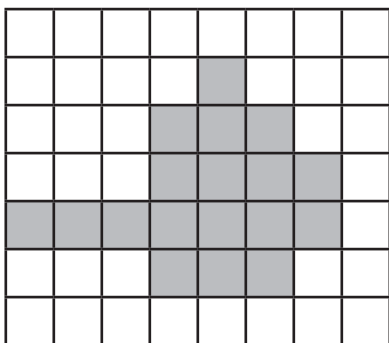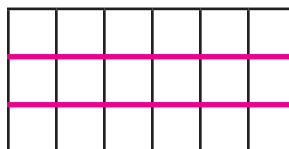**6.** A rug is 9 feet long and 6 feet wide. What is its area? (14-4)

    A 15 square feet

    B 27 square feet

    C 30 square feet

    D 54 square feet

7. Aaron shaded the shape below. What is the area of the shaded shape? (14-1)

18 square units

8. Show two ways to separate the figure into 3 equal parts. What fraction shows the area of one of the parts? (14-9)
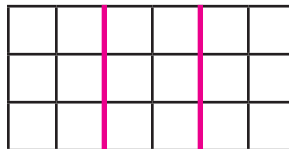
Check students' drawings. Sample answer shown; $\frac{1}{3}$

9. Priya is making a book cover with an area of 28 square inches. Sapna is making a book cover with an area of 28 square centimeters. Maya thinks that Sapna's book cover will have a smaller area. Is she correct? Explain. (14-2)

Yes; Sample answer: One square centimeter is smaller than one square inch.

Name _____

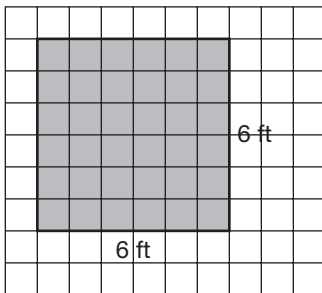**10.** The large rectangle shown below has been separated into two small rectangles. Is the area of the large rectangle equal to the sum of the areas of the two small rectangles? Write an equation to show how you know. (14-5)
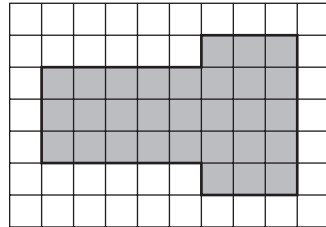
Yes; 4 × 9 = 4 × (5 + 4) = (4 × 5) + (4 × 4) = 36

11. A diagram of Pam's patio is shown below. What is the area of the patio? (14-3)

6 ft
6 ft

36 square feet

12. Mr. Jenkins is building a patio in his yard. The patio is the shaded part of the figure below. How many square feet of yard surround the patio? (14-6)

☐ = 1 square foot

40 square feet

13. A diagram of a path at Eve's house is shown below. What is the area of the path? (14-7)

3 ft
5 ft
3 ft
9 ft
6 ft
5 ft
12 ft
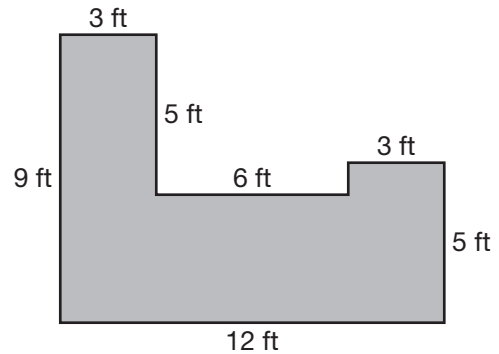
66 square feet

14. Juan's bedroom measures 8 feet by 7 feet. What is the area of Juan's bedroom? (14-3)
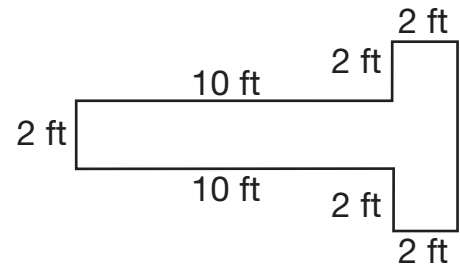
56 square feet

1. Which measurement tool is the best choice for measuring the area of a small picture frame? (14-10)

   A Balance scale

   B Meter stick

   C Yardstick

   D Inch ruler

2. Mr. Carter has 54 square tiles. How should he arrange them so that he has the smallest perimeter? (14-8)

   A 26 by 2 rectangle

   B 1 by 54 rectangle

   C 9 by 6 rectangle

   D 18 by 3 rectangle

3. A diagram of a stage is shown below. What is the area of the stage? (14-7)
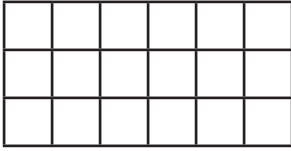

   A 20 square feet

   B 28 square feet

   C 32 square feet

   D 36 square feet

4. Which unit of measurement is the best to use to measure the area of a school playground? (14-10)

   A Square feet

   B Square centimeters

   C Square inches

   D Square miles
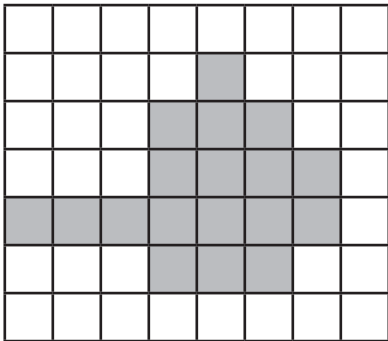
5. What is the area of the figure shown below? (14-1)

    A 12 square units

    B 15 square units

    C 18 square units
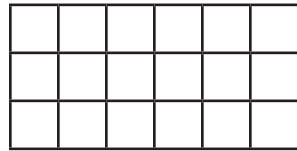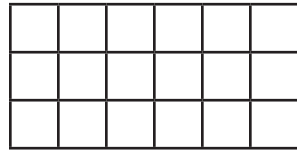
    D 21 square units

6. A rug is 9 feet long and 6 feet wide. What is its area? (14-4)

    A 15 square feet

    B 27 square feet

    C 30 square feet

    D 54 square feet

7. Aaron shaded the shape below. What is the area of the shaded shape? (14-1)

8. Show two ways to separate the figure into 3 equal parts. What fraction shows the area of one of the parts? (14-9)


9. Priya is making a book cover with an area of 28 square inches. Sapna is making a book cover with an area of 28 square centimeters. Maya thinks that Sapna's book cover will have a smaller area. Is she correct? Explain. (14-2)

10. The large rectangle shown below has been separated into two small rectangles. Is the area of the large rectangle equal to the sum of the areas of the two small rectangles? Write an equation to show how you know. (14-5)

_____

_____

_____

11. A diagram of Pam's patio is shown below. What is the area of the patio? (14-3)
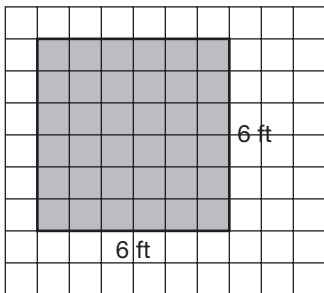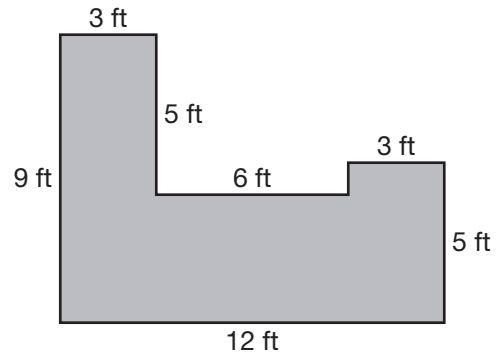
6 ft

6 ft

_____

12. Mr. Jenkins is building a patio in his yard. The patio is the shaded part of the figure below. How many square feet of yard surround the patio? (14-6)
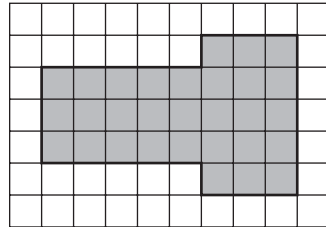
☐ = 1 square foot

_____

13. A diagram of a path at Eve's house is shown below. What is the area of the path? (14-7)

3 ft

5 ft

3 ft

9 ft

6 ft

5 ft

12 ft

_____

14. Juan's bedroom measures 8 feet by 7 feet. What is the area of Juan's bedroom? (14-3)

_____