Chapter 19  Area and Perimeter

Practice 1  Area

Draw and color two different figures. Use 4 squares (□) and 2 half-squares (▱) for each figure.

1.
The figures are made of square and half-square tiles. Write the area of each figure in the table.

<table>
<thead>
<tr>
<th>Figure</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>______ square units</td>
</tr>
<tr>
<td>B</td>
<td>______ square units</td>
</tr>
<tr>
<td>C</td>
<td>______ square units</td>
</tr>
<tr>
<td>D</td>
<td>______ square units</td>
</tr>
<tr>
<td>E</td>
<td>______ square units</td>
</tr>
<tr>
<td>F</td>
<td>______ square units</td>
</tr>
</tbody>
</table>

3. Figure _________ and Figure _________ have the same area.

4. Figure _________ has the largest area.

Each square (□) is 1 square unit. Each half-square (△) is $\frac{1}{2}$ square unit.
Draw two different figures with the same area on the grid.

5. 1 unit

6. Add squares (□) or half-squares (△) to each figure to make its area 7 square units.
Complete.
Cut out the triangle tiles.
Use all the tiles to make three figures with different areas.
Glue them in the spaces below.

7.

A

B

C

8. Which figure has the smallest area? Figure ________

9. Which figure has the largest area? Figure ________

10. Order the figures from smallest to largest area.

________, ________, ________

smallest
Practice 2  Square Units (cm² and in.²)

Find the area of each shaded figure in square centimeters (cm²). Then complete the table.

<table>
<thead>
<tr>
<th>Figure</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>_______ cm²</td>
</tr>
<tr>
<td>B</td>
<td>_______ cm²</td>
</tr>
<tr>
<td>C</td>
<td>_______ cm²</td>
</tr>
<tr>
<td>D</td>
<td>_______ cm²</td>
</tr>
<tr>
<td>E</td>
<td>_______ cm²</td>
</tr>
<tr>
<td>F</td>
<td>_______ cm²</td>
</tr>
</tbody>
</table>

The area of each square is 1 square centimeter.
Draw two different figures with the same area on the grids.

2. What is the area of the figures? __________

3. The figures are made of square and half-square tiles. Find the area of each figure.

   C
   ________ cm²

   D
   ________ cm²

4. Which figure has a larger area? Figure __________

5. How can you make both figures have the same area?

   ___________________________________________
Find the area of each shaded figure in square inches. Then complete the table.

<table>
<thead>
<tr>
<th>Figure</th>
<th>X</th>
<th>Y</th>
<th>Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area</td>
<td>_____ in.²</td>
<td>_____ in.²</td>
<td>_____ in.²</td>
</tr>
</tbody>
</table>

Draw two different figures with the same area on the grid.

7. These inch squares are smaller than in real life.

8. The area of each figure is _____ square inches.
Find the area of each shaded figure in square inches. Then complete the table.

<table>
<thead>
<tr>
<th>Figure</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>__________ in.²</td>
</tr>
<tr>
<td>B</td>
<td>__________ in.²</td>
</tr>
<tr>
<td>C</td>
<td>__________ in.²</td>
</tr>
<tr>
<td>D</td>
<td>__________ in.²</td>
</tr>
</tbody>
</table>

10. Figure _________ and Figure _________ have the same area.

11. Figure _________ has the largest area.

12. Figure _________ has the smallest area.
Practice 3  Square Units ($m^2$ and $ft^2$)

Find the area of each shaded figure in square meters. Then complete the table.

<table>
<thead>
<tr>
<th>Figure</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>______ m²</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>______ m²</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>______ m²</td>
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<td>______ m²</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>______ m²</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Which figure has the smallest area? Figure ______

3. Which figure has the largest area? Figure ______

4. Which figures have the same area? Figures ______
Find the area of each shaded figure in square feet. Then complete the table.

<table>
<thead>
<tr>
<th>Figure</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area</td>
<td>_____ ft²</td>
<td>_____ ft²</td>
<td>_____ ft²</td>
<td>_____ ft²</td>
</tr>
</tbody>
</table>

5. Which figure has the largest area? Figure _________

6. Which figure has the smallest area? Figure _________
The figures are made of square and half-square tiles. Find the area of each shaded figure. Then complete the table.

<table>
<thead>
<tr>
<th>Figure</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td></td>
</tr>
</tbody>
</table>

Remember to show the correct square units in your answer.
Make square pieces of paper with an area of 1 square meter and 1 square foot.
Use a ruler and scissors to cut out the squares.

**Estimate the area in square meters and square feet.**

9. Your kitchen floor
   About ________ m²

10. Your bed
    About ________ ft²

Use the square meter and square foot paper to estimate the area of these objects in your house.

11. | Object                  | Estimate       | Check         |
    |------------------------|----------------|---------------|
    | Dining Table Top       | About ________ | About ________ |
    | Pillowcase             | About ________ | About ________ |
    | Cupboard Door          | About ________ | About ________ |
    | Television Screen      | About ________ | About ________ |
    | Bedroom Floor          | About ________ | About ________ |
Practice 4  Perimeter and Area

Complete. Find the perimeter and area of each shaded figure.

1. The perimeter of Figure A is _______ centimeters.
   The area of Figure A is _______ square centimeters.

2. The perimeter of Figure B is _______ inches.
   The area of Figure B is _______ square inches.

3. The perimeter of Figure C is _______ centimeters.
   The area of Figure C is _______ square centimeters.

4. The perimeter of Figure D is _______ inches.
   The area of Figure D is _______ square inches.

These inch squares are smaller than in real life.
Complete. Find the perimeter and area of each shaded figure.

5. The perimeter of Figure A is _______ meters.
   The area of Figure A is _______ square meters.

6. The perimeter of Figure B is _______ feet.
   The area of Figure B is _______ square feet.

7. The perimeter of Figure C is _______ meters.
   The area of Figure C is _______ square meters.

8. The perimeter of Figure D is _______ feet.
   The area of Figure D is _______ square feet.
Draw two different figures with an area of 5 square centimeters.

9. 

What do you notice about the perimeters of the figures drawn? 

Draw two different figures with a perimeter of 8 centimeters.

10. 

What do you notice about the areas of the figures drawn? 

Lesson 19.4 Perimeter and Area
Find the perimeter and area of each figure.

11. 

Perimeter = __________ 

Area = __________ 

12. 

Perimeter = __________ 

Area = __________ 

Write Yes or No.

13. Do Figures A and B have the same area? __________

14. Do Figures A and B have the same perimeter? __________

What is different about perimeter and area? Explain.

15. ____________________________________________

________________________________________________

________________________________________________

________________________________________________
Find the area.

Example

Mr. Jones built the following koi pond in his front yard.
What is the total area of his koi pond?

![Diagram of the koi pond with dimensions: 9 m x 5 m for Figure A, 8 m x 6 m for Figure B.]

Area of Figure A = \[
\begin{array}{c}
9 \\
\times \\
5 \\
\end{array}
\]
\[
= 45 \text{ m}^2
\]

Area of Figure B = \[
\begin{array}{c}
8 \\
\times \\
6 \\
\end{array}
\]
\[
= 48 \text{ m}^2
\]

Total area of the koi pond = \[
\begin{array}{c}
45 \\
+ \\
48 \\
\end{array}
\]
\[
= 93 \text{ m}^2
\]

The total area of Mr. Jones’ koi pond is 93 square meters.
1. Mr. and Mrs. Meyer want to build a pool in their front yard. They design the following pools.

If Mr. and Mrs. Meyer want to build a pool with the largest area, which design should they pick?

Area of C = ________  
= ________ m²

Area of D = ________  
= ________ m²

Total area of Design A = ________  
= ________ m²

Area of E = ________  
= ________ m²

Area of F = ________  
= ________ m²

Total area of Design B = ________  
= ________ m²

Mr. and Mrs. Meyer should pick pool design ________ as it has the larger area of ________ square meters.
Practice 5  More Perimeter

Measure the sides of each figure with a ruler. Then find the perimeter.

1. 

![Triangle](image1)

Perimeter

\[ \square + \square + \square \]

\[ = \square \text{ in.} \]

2. 

![Parallelogram](image2)

Perimeter

\[ \square + \square + \square + \square \]

\[ = \square \text{ in.} \]

3. 

![Pentagon](image3)

Perimeter

\[ \square + \square + \square + \square + \square \]

\[ = \square \text{ cm} \]
Complete.
Find the perimeter of each figure.
Remember to show the correct unit in your answer.

4.  
   \[ \text{Perimeter} = \underline{6 cm} + \underline{4 cm} + \underline{6 cm} + \underline{4 cm} \]
   \[ = \underline{20 cm} \]

5.  
   \[ \text{Perimeter} = \underline{7 \text{ in.}} + \underline{7 \text{ in.}} + \underline{7 \text{ in.}} + \underline{7 \text{ in.}} \]
   \[ = \underline{28 \text{ in.}} \]

6.  
   \[ \text{Perimeter} = \underline{20 \text{ ft}} + \underline{3 \text{ ft}} + \underline{20 \text{ ft}} + \underline{3 \text{ ft}} \]
   \[ = \underline{46 \text{ ft}} \]

7.  
   \[ \text{Perimeter} = \underline{8 \text{ m}} + \underline{8 \text{ m}} + \underline{8 \text{ m}} + \underline{8 \text{ m}} \]
   \[ = \underline{32 \text{ m}} \]
Complete.

Find the perimeter of each figure. Remember to show the correct unit in your answer.

8. Perimeter
   \[= \text{ } + \text{ } + \text{ }
   = \text{ }

9. Perimeter
   \[= \text{ } + \text{ } + \text{ } + \text{ }
   = \text{ }

10. Perimeter

11. Perimeter
12. Use your ruler or a measuring tape to find the perimeter of each figure or object.

<table>
<thead>
<tr>
<th>Object</th>
<th>Centimeter</th>
<th>Inch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cover of your workbook</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Piece of paper</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Figure A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Figure B</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

13. Use your meterstick or yardstick to measure the perimeter of each object.

<table>
<thead>
<tr>
<th>Object</th>
<th>Meter</th>
<th>Foot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Picture frame</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bedroom door</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Table top</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rug</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Solve.

14. Sean walks along the edge of a rectangular field once to look for his lost keychain. How far does he walk?

![Rectangular Field Diagram]

10 m
8 m

15. Alyssa wants to decorate this birthday card by pasting ribbon around it. What is the length of ribbon she needs?

![Birthday Card Diagram]

12 cm
7 cm

16. Owen has two square cardboard pieces. Each side is 6 inches. He places them side by side to make a rectangle. What is the perimeter of the rectangle?

![Cardboard Pieces Diagram]
Solve.

17. Theo wraps tape around the top of this rectangular box twice. What is the length of sticky tape he uses?

18. Each student in a group glued a string around a square with a side of 12 centimeters. There are 5 students in the group. What was the total length of string they used?
19. The length of a rectangular hall is 4 times its width. If the perimeter of the hall is 20 meters, find the length and width of the hall.

<table>
<thead>
<tr>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Width</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

20. Four square tables are arranged next to each other to form one large rectangular table. The perimeter of the large rectangular table is 20 meters. What is the perimeter of each square table?

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
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<tr>
<td></td>
</tr>
</tbody>
</table>
John’s mistakes are circled. Explain why his answers are not correct.

Write the correct answers.

Example  The unit for the perimeter of Figure B should be meter (m).

1. Perimeter of Figure A:

2. Perimeter of Figure C:

3. Perimeter of Figure E:
Put On Your Thinking Cap!

Challenging Practice

Complete.

1. Draw different rectangles with an area of 12 square centimeters. Then draw different rectangles with an area of 9 square centimeters. How many rectangles can you draw for each area?

1 cm

1 cm
Solve.
2. Karl bends a piece of wire into a square as shown.

Which of these rectangles can he make using the same piece of wire?

A 8 cm
4 cm

B 10 cm
6 cm

C 11 cm
5 cm

D 9 cm
8 cm
3. Ally wants to build an exercise pen for her pet rabbit. She has 36 feet of fencing to build a rectangular enclosure in her yard. She wants to carefully plan the length and width of the pen, measuring in units of whole feet.

Find all the possible ways that Ally could build her pen and have a perimeter of 36 feet. Fill in the table below.

<table>
<thead>
<tr>
<th>Width (ft)</th>
<th>Length (ft)</th>
<th>Perimeter (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ft</td>
<td>17 ft</td>
<td>36 ft</td>
</tr>
</tbody>
</table>

4. What are some of the concerns that Ally needs to think of in planning for the exercise pen?

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________
Put On Your Thinking Cap!

Problem Solving

Solve.
Look at this pattern.

What is the area of each figure?

<table>
<thead>
<tr>
<th>Figure</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
</tr>
</tbody>
</table>

If the pattern continues, what will the area of Figure E be? Draw Figure E.