Lesson 4: Perimeter of Composite Figures

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| Learning Goals:  |

* Solve problems requiring the calculation of the perimeter of composite figures made up of straight line segments and half-and quarter circles
* Apply and adapt appropriate formulas to solve a given problem

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| Topic: Perimeter of Composite Figures |

**Perimeter** is the distance around an object. If that object is a circle then the perimeter is called **circumference**. We use formulas to calculate perimeter.



**Composite figures** are made up of simple shapes such as triangles, rectangles and circles.

Here we have a composite figure composed of a rectangle and a semi-circle. We can use our understanding of the perimeter formulas to determine the perimeter of these composite figures.

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| Example(s):  |

Find the perimeter of each of the following shapes.

a.

 **Step 1** Select the correct formula

 P = a + b + c

 **Step 2** Substitute the given dimensions and solve

 P = a + b + c

 = 8 + 10 + 6

 = 24 cm

b.

 **Step 1** Select the correct formula

 P = l + l + w + w

 **Step 2** Substitute the given dimensions and solve

 P = l + l + w + w

 = 15 + 15 + 8 + 8

 = 46 cm

c.

 **Step 1** Look at the figure and recognize the shapes present include a rectangle and semi-circle.

 **Step 2** Adapt the perimeter formulas.

This figure only include 3 sides of the rectangle since the 4th side is ½ of a circle. So perimeter is

P = l + l + w + ($π$ x d$÷$2)

Recall circumference of a circle is C = 3.14 x d

Because we have half a circle, we divide by 2.

**Step 3** Substitute the given dimensions and solve

 P = l + l + w + ($π$ x d$÷$2)

 = 22 + 22 + 12 + ($π$ x 12 $÷$ 2)

 = 74.84 cm

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| Practice Questions:  |

1. Find the perimeter of the following shapes:

a.

b.

c.

d.

e.



2. Find the perimeter of the following shapes:

a.



b.



c.



d.



2. A basketball court measures 41.6’ by 15.6’. What is the perimeter of the basketball court?

3. A basketball has the radius of 15 cm. What is the minimum circumference needed for the rim of the basketball hoop?

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| Strand 3 Lesson 4 Assessment: |

1. Calculate the perimeter of the following figures:

A.



B.



C.



D.



1. A racetrack has inside and outsides as shown below. How much farther does a person have to run if they run on the outside of the track instead of the inside?

