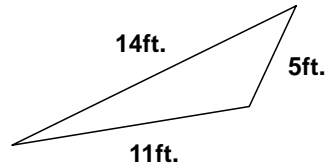


Perimeter

The perimeter of a geometric figure is the distance around the figure. The perimeter could be thought of as walking around the figure while keeping track of the distance traveled. To determine the perimeter of the triangle below, find the sum of the sides.

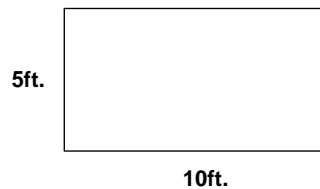


The perimeter of the above triangle is:

$$P = 14 \text{ ft.} + 5 \text{ ft.} + 11 \text{ ft.}$$

$$P = 30 \text{ ft.}$$

To find the perimeter of a rectangle, the same method is used. Often, only two dimensions are stated when describing a rectangle, the length and width. To determine the perimeter of the rectangle below, find the sum of the sides. Remember that opposite sides of a rectangle have the same dimensions.

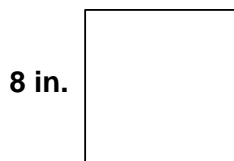


The perimeter of the above rectangle is:

$$P = 5 \text{ ft.} + 10 \text{ ft.} + 5 \text{ ft.} + 10 \text{ ft.}$$

$$P = 30 \text{ ft.}$$

To find the perimeter of a square, the same method is used. Often only one dimension is stated when describing a square.



The perimeter of the square is:

$$P = 8 \text{ ft.} + 8 \text{ ft.} + 8 \text{ ft.} + 8 \text{ ft.}$$

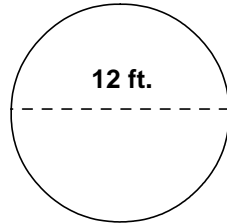
$$P = 32 \text{ ft.}$$

The distance around a circle is called the circumference and is usually calculated. The formula to find the Circumference of a circle is:

$$C = \pi d$$

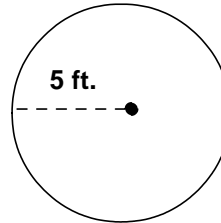
Where π (pi) is a constant and is approximately 3.14. The letter d represents the diameter of the circle. Sometimes the radius of the circle is given instead of the diameter, so it is important to know that the diameter is the same as twice the radius of a given circle.

A circle with diameter given



$$\begin{aligned} C &= \pi d \\ C &= 12\pi \text{ ft.} \\ &\text{or} \\ C &= 37.68 \text{ ft.} \end{aligned}$$

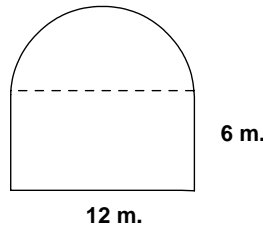
A circle with radius given



$$\begin{aligned} C &= \pi d \\ C &= 10\pi \text{ ft.} \\ &\text{or} \\ C &= 31.4 \text{ ft.} \end{aligned}$$

In some instances π is requested in answer.

When calculating the perimeter of composite figures, each section is added to obtain the perimeter. For the figure below some assumptions must be made. The base must be assumed to be rectangular so that the circular portion can be calculated as well as the opposite side. In addition it must be assumed that the circular portion is a semicircle (or half of a circle). In general, when figures are given on exams, assumptions must be taken. If figure portion looks like a semicircle, assume it is a semicircle unless otherwise stated. Dashed lines in figures are dimension lines. The perimeter to be calculated is represented by the solid lines.



To calculate the perimeter of the above figure, start with a plan. To find the total perimeter we add up the sides, $P = 6 \text{ m.} + 12 \text{ m.} + 6 \text{ m.} + \frac{1}{2}$ the circumference of a circle.

To Calculate the circumference of the circle use, $C = \pi d$.

Since the diameter is 12 m., $C = 12\pi \text{ m.}$ or 37.68 m.

To avoid confusion always calculate the circumference of a complete circle and then determine how much of the circle is needed for the perimeter.

$\frac{1}{2}$ the circumference of a circle would be $6\pi \text{ m.}$ or 18.84 m.

The total perimeter is $P = 6 \text{ m.} + 12 \text{ m.} + 6 \text{ m.} + 6\pi$

$$P = (24 \text{ m.} + 6\pi) \text{ m.}$$

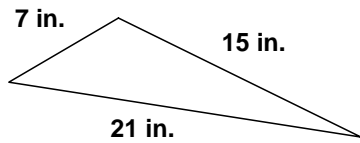
or

$$P = 42.84 \text{ m.}$$

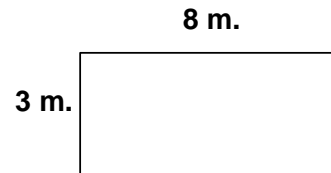
Problem Set 1:

For the figures below find the perimeter or circumference. Use 3.14 for π .

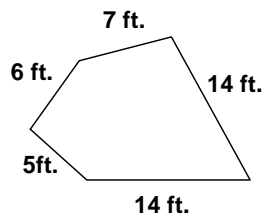
1.



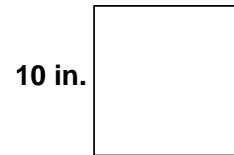
2.



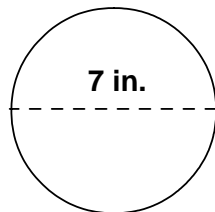
3.



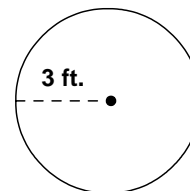
4.



5.



6.

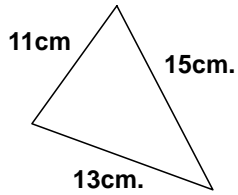


7. Find the perimeter of a sheet of paper $8 \frac{1}{2}$ inches by 11 inches.
8. Find the Circumference of a circle with a 24 feet radius.
9. Find the Circumference of a circle with an 18 meter diameter.
10. Find the perimeter of a polygon with sides measuring 6 in., 3 in., 5 in., 7 in. and 9 in.

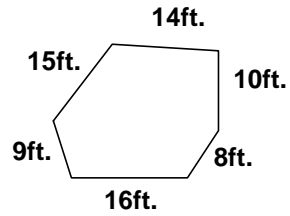
Problem Set 2.

For the figures below find the perimeter or circumference. Use 3.14 for π .

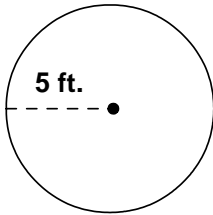
11.



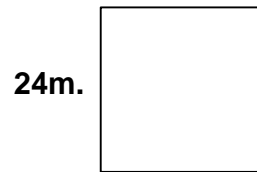
12.



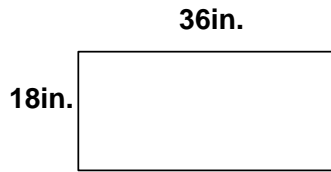
13.



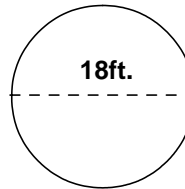
14.



15.



16.

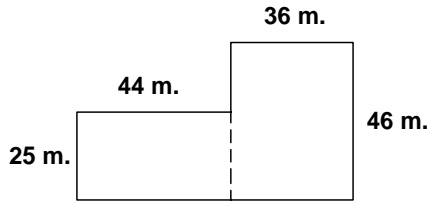


17. Calculate the amount of fencing required for a square pig pen with a dimension on one side of 20 feet.
18. Find the Circumference of a circle with a 130 feet radius.
19. Find the perimeter of an equilateral triangle that measures 20 meters on a side.
20. Calculate the circumference of a circle with a 48 meter radius.

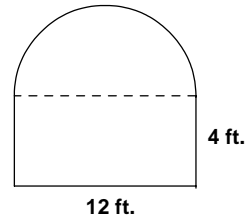
Problem Set 3.

For the figures below find the perimeter or circumference. Use 3.14 for π .

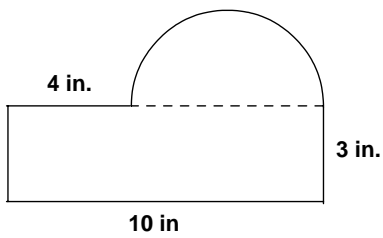
21.



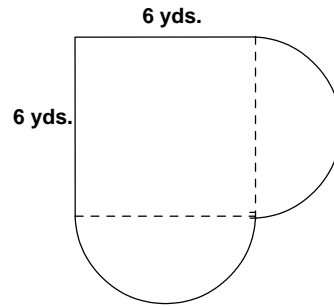
22.



23.



24.



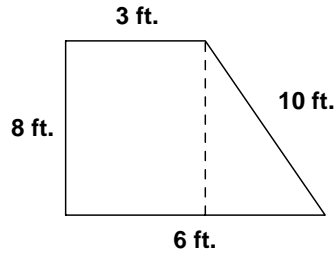
25. A fence with three gates is being built around a rectangular lot 50 feet by 100 feet. If each gate is 4 feet wide and costs \$24 dollars, how much will it cost to build the fence and gates if the fencing costs \$2 per foot?

26. A field 200 feet by 150 feet is being fenced with barbed wire. Three strands of wire will be used for the fence. How much barbed wire will be required?

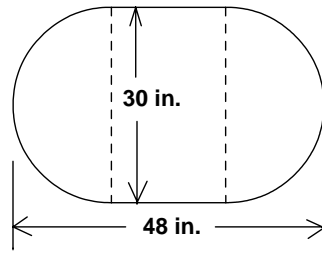
Problem Set 4.

For the figures below find the perimeter or circumference. Use 3.14 for π .

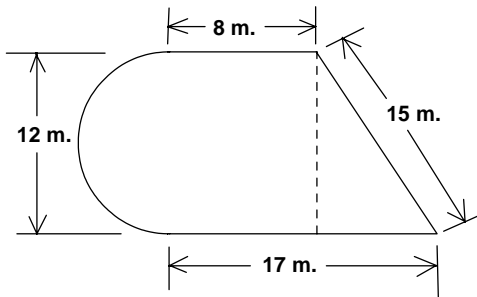
27.



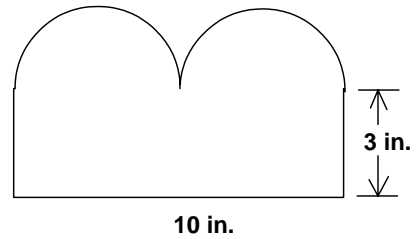
28.



29.



30.



33. The skating track in a roller rink has two 50 feet straight sides with 20 feet diameter semicircles at each end. How far would one skate in 4 laps?

32. A rectangular lot 100 by 50 feet is being fenced. One of the 100 feet dimensions is on the water and requires a special fence with gate 10 feet wide. The cost of the gate is \$100 and the waterfront fence has a cost of \$5 per foot. The rest of the fence has a cost of \$3 per foot. What is the total cost for this project?