

NAME: _____

DATE: _____

CIRCLES & AREA

PERIOD: _____

How Do You Find Area of Shaded Regions?

(Topic #9)

Sometimes, you may be required to calculate the area of shaded regions. Usually, we would subtract the area of a smaller inner shape from the area of a larger outer shape in order to find the area of the shaded region.

How to Find the Area of the Shaded Region?

Step 1: Find area of inner shape.

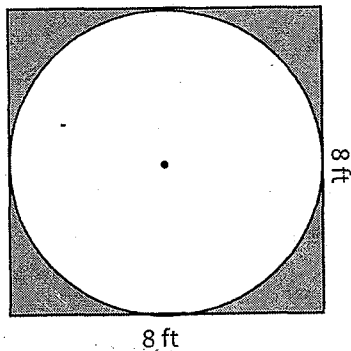
Step 2: Find area of outer shape.

Step 3: Find the area of shaded region.

$$\text{Area of Shaded Region} = \text{Area of Outer Shape} - \text{Area of Inner Shape}$$

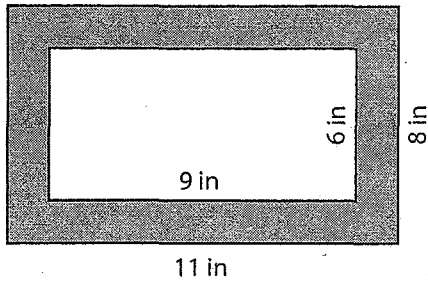
EXAMPLE 1: Find the Area of Shaded region

Find the area of the shaded region. Round your answer to the *nearest tenth*.

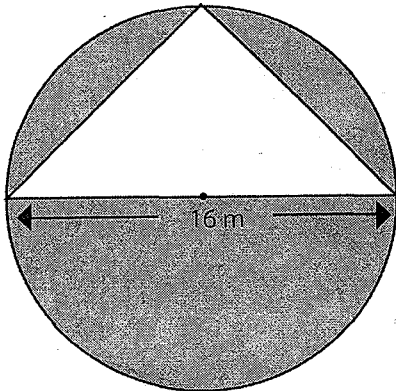


PRACTICE: Find the area of the shaded region. Round your answer to the nearest tenth if necessary. Make sure you label your final answer with appropriate units.

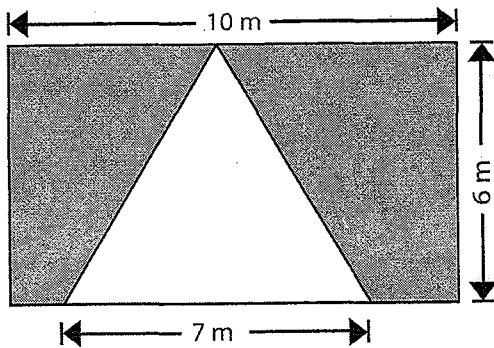
1.



2.



3.



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How Do You Find Area of Shaded Regions?

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Sometimes, you may be required to calculate the area of shaded regions. Usually, we would subtract the area of a smaller inner shape from the area of a larger outer shape in order to find the area of the shaded region.

How to Find the Area of the Shaded Region?

Step 1: Find area of inner shape.

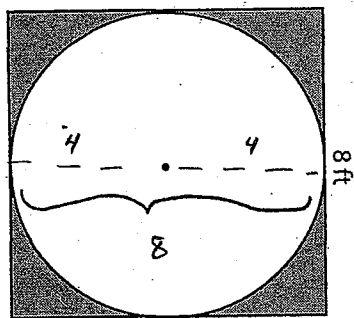
Step 2: Find area of outer shape.

Step 3: Find the area of shaded region.

$$\text{Area of Shaded Region} = \text{Area of Outer Shape} - \text{Area of Inner Shape}$$

EXAMPLE 1: Find the Area of Shaded region

Find the area of the shaded region. Round your answer to the nearest tenth.



Square

$$A = s^2$$

$$A = 8^2$$

$$A = 64$$

Circle

$$A = \pi r^2$$

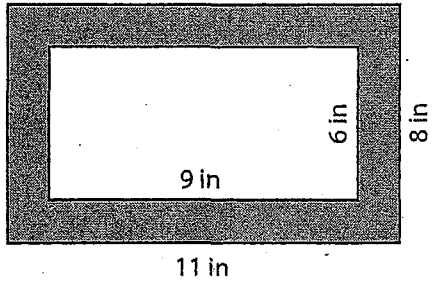
$$A = \pi (4)^2$$

$$A = 50.3$$

$$\begin{aligned} \text{Area of Shaded Region} &= \text{Outer} - \text{Inner} \\ &= 64 - 50.3 \\ &= 13.7 \text{ ft}^2 \end{aligned}$$

PRACTICE: Find the area of the shaded region. Round your answer to the nearest tenth if necessary. Make sure you label your final answer with appropriate units.

1.



Outer Rect.

$$A = LW$$

$$A = 11(8)$$

$$A = 88$$

Inner Rect.

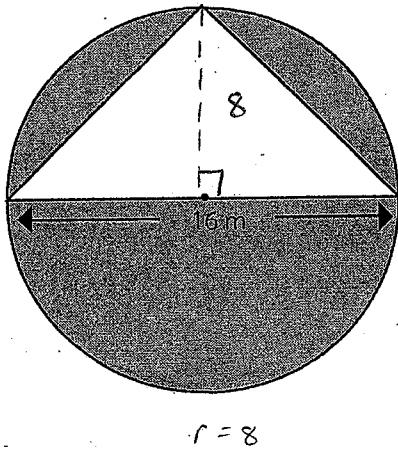
$$A = LW$$

$$A = 9(6)$$

$$A = 54$$

$$\begin{aligned} \text{Shaded} &= 88 - 54 \\ \text{Region} &= 34 \text{ in}^2 \end{aligned}$$

2.



Circle

$$A = \pi r^2$$

$$A = \pi (8)^2$$

$$A = 201.1$$

Triangle

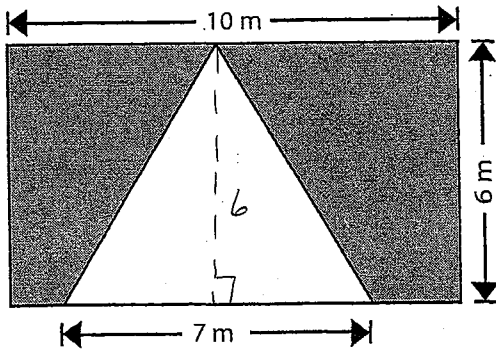
$$A = \frac{1}{2}bh$$

$$A = \frac{1}{2}(16)(8)$$

$$A = 64$$

$$\begin{aligned} \text{Shaded} &= 201.1 - 64 \\ \text{Region} &= 137.1 \text{ m}^2 \end{aligned}$$

3.



Rect.

$$A = LW$$

$$A = (10)(6)$$

$$A = 60$$

Triangle

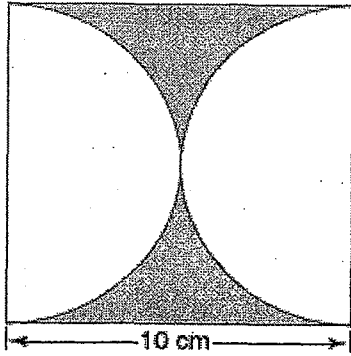
$$A = \frac{1}{2}bh$$

$$A = \frac{1}{2}(7)(6)$$

$$A = 21$$

$$\begin{aligned} \text{Shaded} &= 60 - 21 \\ \text{Region} &= 39 \text{ m}^2 \end{aligned}$$

4.



$$r = 5$$

Square

$$A = s^2$$

$$A = 10^2$$

$$A = 100$$

Circle

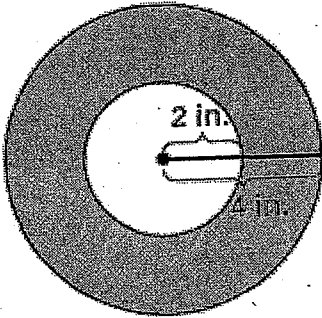
$$A = \pi r^2$$

$$A = \pi (5)^2$$

$$A = 78.5$$

$$\begin{aligned} \text{Shaded Region} &= 100 - 78.5 \\ &= 21.5 \text{ cm}^2 \end{aligned}$$

5.

Outer

$$A = \pi r^2$$

$$A = \pi (4)^2$$

$$A = 50.3$$

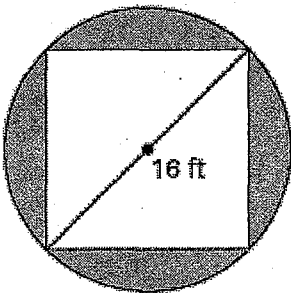
Inner

$$A = \pi r^2$$

$$A = \pi (2)^2$$

$$A = 12.6$$

$$\begin{aligned} \text{Shaded Region} &= 50.3 - 12.6 \\ &= 37.7 \text{ in}^2 \end{aligned}$$

~~6.~~

$$A = \pi r^2$$

$$A = \pi (8)^2$$

$$A = 201.1$$



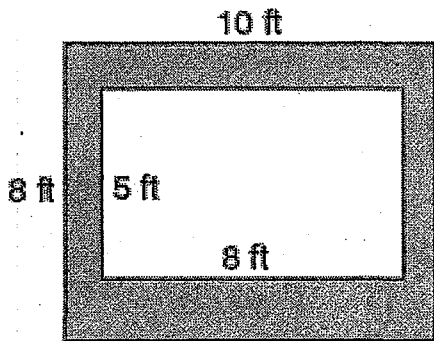
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HOMEWORK - (Topic #9)
Finding the Area of a Shaded Region

Find the area of the shaded region. Round your answer to the nearest hundredth if necessary. Show all work.

1.



Outer

$$A = lw$$

$$A = 10(8)$$

$$A = 80$$

Inner

$$A = lw$$

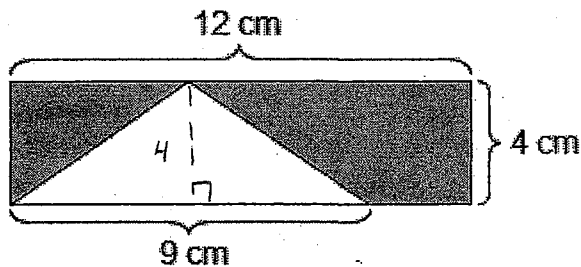
$$A = 8(5)$$

$$A = 40$$

$$\begin{aligned} \text{Shaded} \\ \text{Region} &= 80 - 40 \end{aligned}$$

$$= 40 \text{ ft}^2$$

2.



Rect.

$$A = lw$$

$$A = 12(4)$$

$$A = 48$$

Triangle

$$A = \frac{1}{2}bh$$

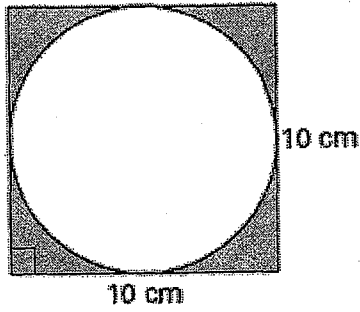
$$A = \frac{1}{2}(9)(4)$$

$$A = 18$$

$$\begin{aligned} \text{Shaded} \\ \text{Region} &= 48 - 18 \end{aligned}$$

$$= 30 \text{ cm}^2$$

3.

Square

$$A = s^2$$

$$A = 10^2$$

$$A = 100$$

Circle

$$A = \pi r^2$$

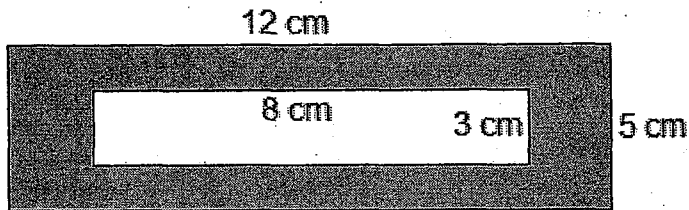
$$A = \pi (5)^2$$

$$A = 78.5$$

$$\text{Shaded} = 100 - 78.5$$

$$\text{Region} = 21.5 \text{ cm}^2$$

4.

Outer

$$A = Lw$$

$$A = 12(5)$$

$$A = 60$$

Inner

$$A = Lw$$

$$A = 8(3)$$

$$A = 24$$

Shaded

$$= 60 - 24$$

Region

$$= 36 \text{ cm}^2$$