

STUDY GUIDE: CIRCLES AND AREAS OF COMPOSITE FIGURES

Complete this study guide and turn in the day before our assessment.

CIRCLES

Circle: A circle is the collection of all points that is the same distance, r , from a center called C .

Radius: The distance from the center of a circle to any point on the circle is a radius.

Diameter: The distance between two points on the circle going through the center.

Pi (π): The ratio of the circumference of a circle and the diameter. Approximately 3.14.

Circumference: The distance around a circle. Calculated with the formula: $C = \pi d$ or $C = 2\pi r$, where d is the diameter and r is the radius.

Area: the area of a circle is calculated as $A = \pi r^2$. Multiply the radius by itself and then multiply the result by π .

AREA MODELS

Area models can be used to solve algebra problems.

Example: $(x + 6)(x + 2)$

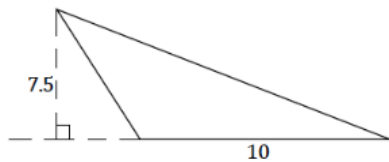
	x	6
x	x^2	$6x$
2	$2x$	12

$$= x^2 + 6x + 2x + 12 = x^2 + 8x + 12$$

AREAS OF SIMPLE SHAPES

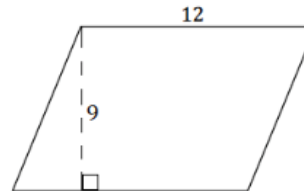
Triangular region:

$$\text{Area} = \frac{1}{2}(\text{base} \times \text{height})$$



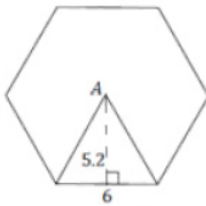
Parallelograms:

$$\text{Area} = \text{base} \times \text{height}$$



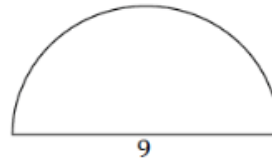
Regular Hexagon:

$$\text{Area} = \frac{1}{2}(\text{base} \times \text{height}) \times \# \text{ of sides}$$



Semi-Circle:

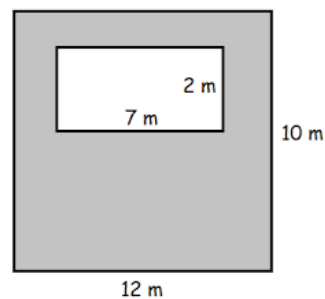
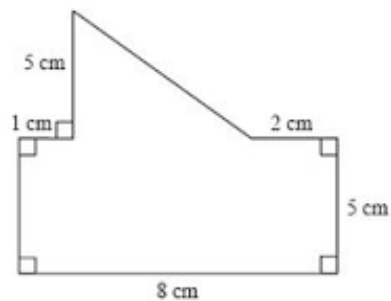
$$\text{Area} = \frac{1}{2}\pi r^2$$



COMPOSITE FIGURES

Composite Figure: A figure that can be divided into more than one basic figure such as a triangle, rectangle or semicircle.

Examples:



When solving composite area problems, you either need to add or subtract areas (add triangle and rectangle on the left, and subtract small rectangle from large rectangle on the right)

Problem Set

Complete this problem set and be prepared to submit it to Ms. Tran or Mr. Rogove the day before we take our test. Where necessary, use 3.14 to approximate Pi.

The game of Spot It! has round playing cards, like pictured at the right.



Each card has a diameter of 2.5 inches.
What is the area of each card?

What is the perimeter of each card?

Parachute is a game I played as a child. There is a large colorful, circular parachute that is 24 feet in diameter. In the middle is a 1 foot diameter circle to let air through.



How much stitching must go around the big circle of the parachute to keep it together (do not count the handles)?

What is the area of the parachute (do not count the middle cut out)?

Find the diameter AND area of a circle that has a circumference of 34.54 cm.

Find the circumference AND diameter of a circle that has an area of 113.04 m².

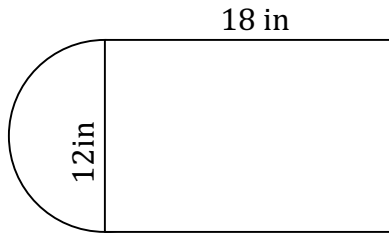
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Math 7.1

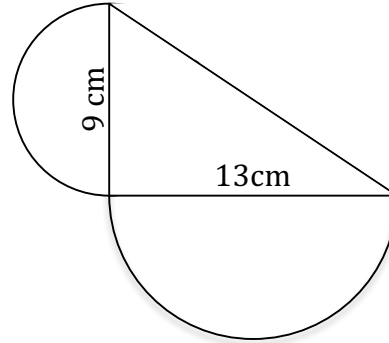
Tran/Rogove

Date: _____

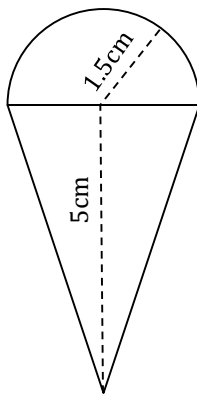
Find the area and perimeter:



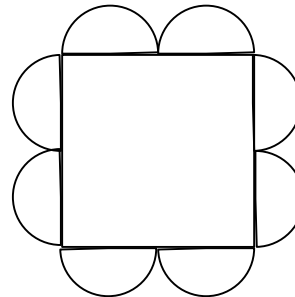
Find the area and perimeter:



Find the area and perimeter:



Find the area and perimeter. Each semicircle has a radius of 3 meters.



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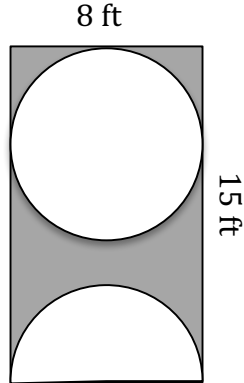
Use an area model to multiply the following: 43×54

Write at least two equivalent expressions to represent the expression above.

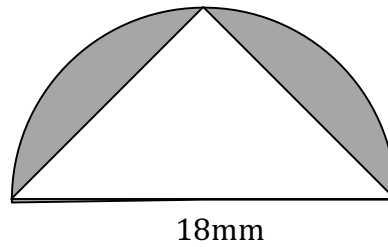
Use an area model to multiply the following: $(x + 4)(x + 7\frac{1}{2})$

Write at least two equivalent expressions to represent the expression above.

Find the area of the shaded region.



Find the area of the shaded region.



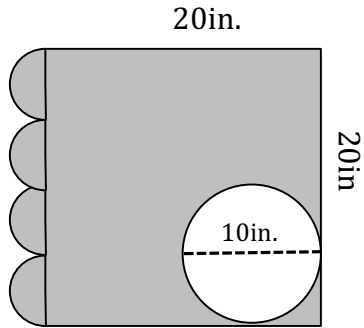
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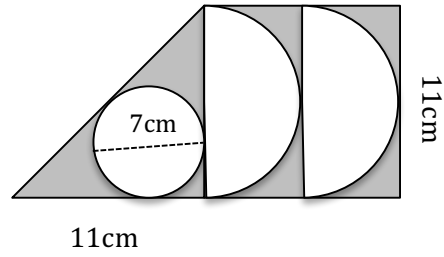
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Find the area of the shaded region.



Find the area of the shaded region



Create your own composite area problem and solve it below.

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