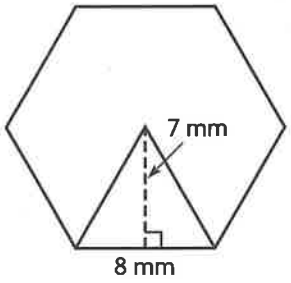
Name _____

Area of Regular Polygons

Common Core **COMMON CORE STANDARD—6.G.A.1**
Solve real-world and mathematical problems involving area, surface area, and volume.

Find the area of the regular polygon.

1.

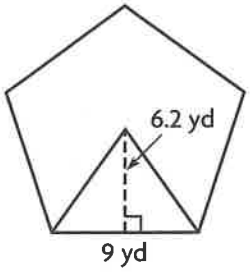


number of congruent triangles inside the figure: 6

area of each triangle: $\frac{1}{2} \times$ 8 $\times$ 7 $=$ 28 mm^2

area of hexagon: 168 mm^2

2.



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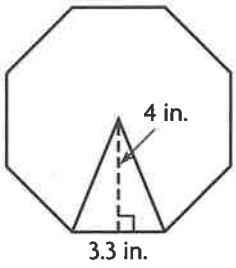
3.



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Problem Solving Real World

4. Stu is making a stained glass window in the shape of a regular pentagon. The pentagon can be divided into congruent triangles, each with a base of 8.7 inches and a height of 6 inches. What is the area of the window?

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5. A dinner platter is in the shape of a regular decagon. The platter has an area of 161 square inches and a side length of 4.6 inches. What is the area of each triangle? What is the height of each triangle?

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6. WRITE Math A square has sides that measure 6 inches. Explain how to use the method in this lesson to find the area of the square.

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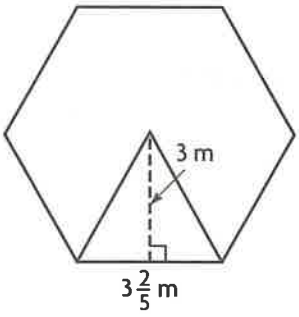
Lesson Check (6.G.A.1, 6.EE.A.2c)

1. What is the area of the regular hexagon?



2. A regular 7-sided figure is divided into 7 congruent triangles, each with a base of 12 inches and a height of 12.5 inches. What is the area of the 7-sided figure?

Spiral Review (6.EE.A.2c, 6.EE.B.5, 6.EE.C.9, 6.G.A.1)

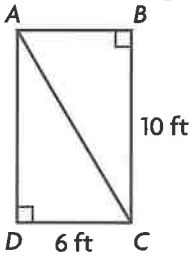
3. Which inequalities have $b = 4$ as one of its solutions?

$2 + b \geq 2$ $\quad$ $3b \leq 14$

$8 - b \leq 15$ $\quad$ $b - 3 \geq 5$

4. Each song that Tara downloads costs $1.25. She graphs the relationship that gives the cost y in dollars of downloading x songs. Name one ordered pair that is a point on the graph of the relationship.

5. What is the area of triangle ABC?



6. Marcia cut a trapezoid out of a large piece of felt. The trapezoid has a height of 9 cm and bases of 6 cm and 11 cm. What is the area of Marcia's felt trapezoid?