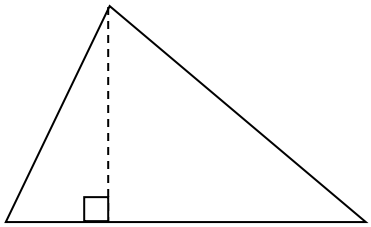
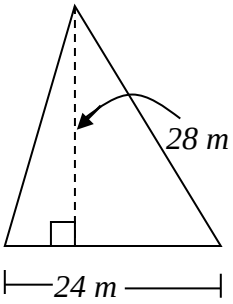
Geometry B Notes **Name** _____
Section 10.1

Areas of Parallelograms and Triangles

- *I can find perimeters and areas of triangles and parallelograms.*
- *I can find area and perimeter of triangles and parallelograms on a coordinate plane.*

Term	Definition/Example	Picture
Area of Triangles		
Area of a Parallelogram		
Review: **Perimeter of a Polygon**		

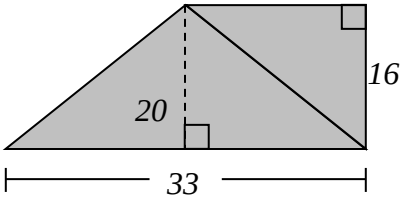
Example 1:
Find the area of the triangle.



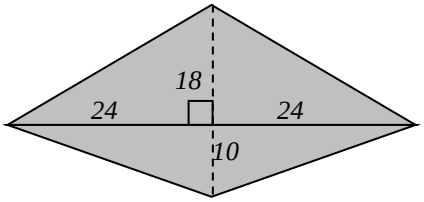
Your Turn:

Find the area of each figure.

a.



b.



Example 2:

The area of a triangle is 72 square inches. If the height is 8 in., find the length of the base.

Your Turn:

A right triangle has a perimeter of 36 meters, a hypotenuse of 15 m, and a leg of 9 meters. Find the area of the triangle.

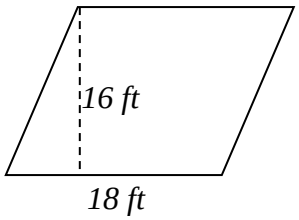
Example 3:

Find the area of parallelogram EFGH.

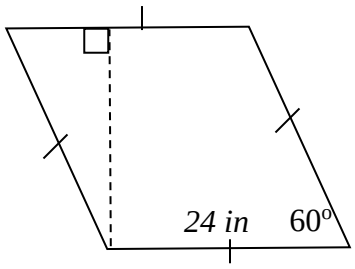
Your Turn:

Find the area of each parallelogram.

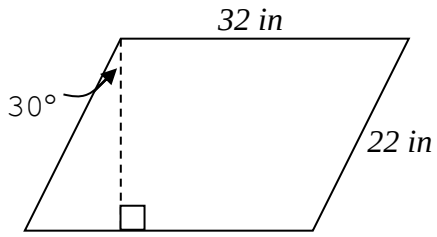
a)



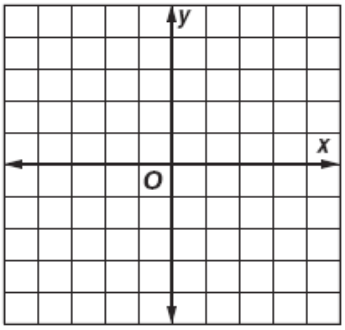
b)



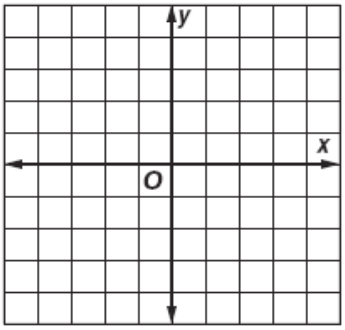
Example 4:
*Find the **perimeter** and **area** of the parallelogram.*



Example 6:
The vertices of a quadrilateral are A(-2, 2), B(4, 2), C(5, -1), and D(-1, -1).
Find the area of ABCD.



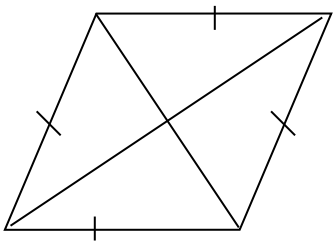
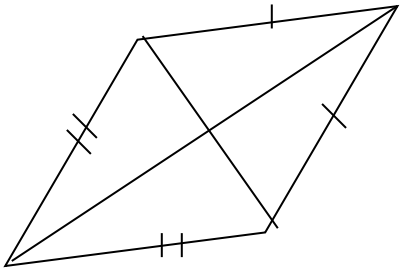
Your Turn:
The vertices of a quadrilateral are R(-1, 2), S(5, 0), T(4, -3), and U(-2, -1)
Find the area of RSTU.



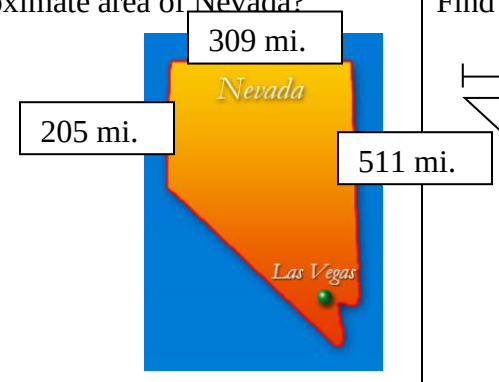
Geometry B Notes
Section 10.2

Areas of Kites, Trapezoids, and Rhombi

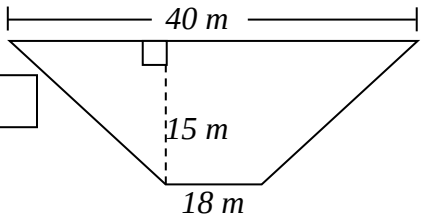
- *I can find perimeters and areas of kites, trapezoids, and rhombi.*
- *I can determine whether points on a coordinate plane define a kite, trapezoid or rhombus.*

Area of a Trapezoid		
Area of a Rhombus		
Area of a Kite		

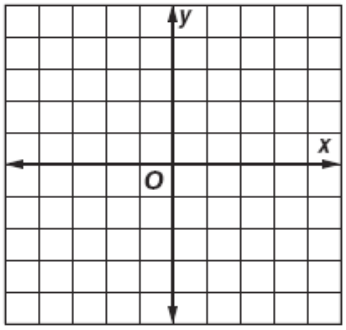
Example 1:
What is the approximate area of Nevada?



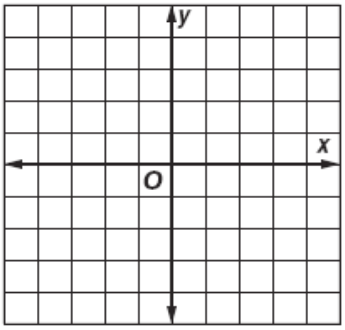
Example 2:
Find the area of the trapezoid.



Example 3:
Find the **perimeter** and **area** of rhombus MNPR with vertices at M(0, 1), N(4, 2), P(3, -2), and R(-1, -3).



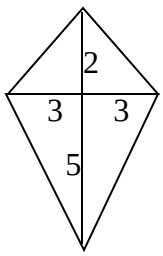
Your Turn:
Find the **perimeter** and **area** of rhombus ABCD with vertices at A(-3, 3), B(2, 2), C(3, -3), and D(-2, -2).



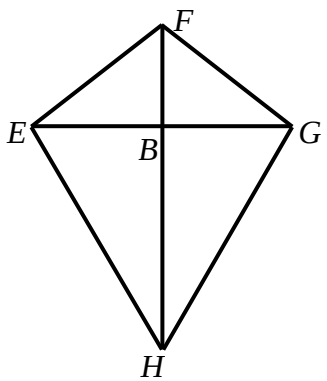
Example 4:
The area of a trapezoid is 144 sq. in. If the height is 12 inches and the length of one of the base is 6 in., find the length of the other base.

Your Turn:
A rhombus has a perimeter of 80 meters and a length of one diagonal is 24 meters. Find the area of the rhombus.

Example 5:
Find the **perimeter** and **area** of the kite below:



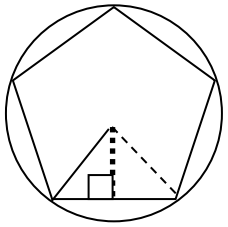
Your Turn:
Find the **perimeter** and **area** of the kite below if EG = 8, EF = 5, and GH = $\sqrt{97}$



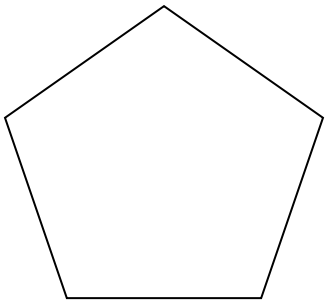
Geometry B Notes
Section 10.3

Areas of Regular Polygons

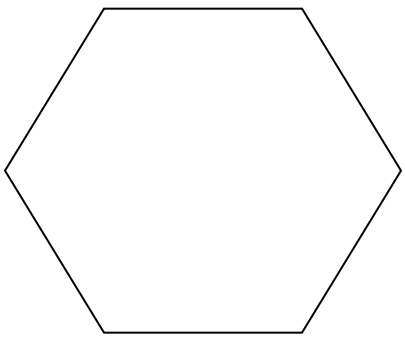
- *I can find areas of regular polygons*

Term	Definition/Example	Picture
Area of Regular Polygons **(apothem)**		

Example 1:
Find the area of regular pentagon RSTUV if its perimeter is 60 cm.

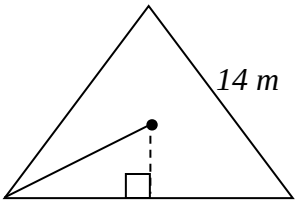


Example 2:
Find the area of regular hexagon RSTUVW if the length of one side is 12.

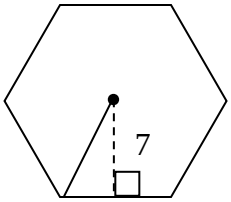


Your Turn:
Find the area of each regular polygon.

a)



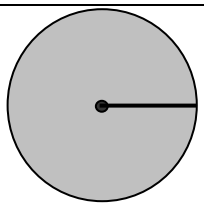
b)



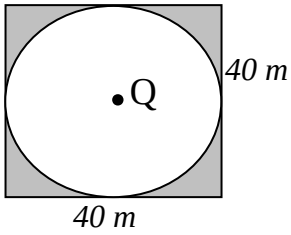
Geometry B Notes
Section 10.4

Areas of Circles and Sectors of Circles

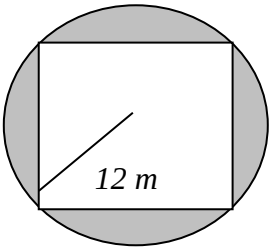
- *I can find the area of circles.*
- *I can find the area of a sector of a circle.*

Area of a Circle	The **area of a circle** is	

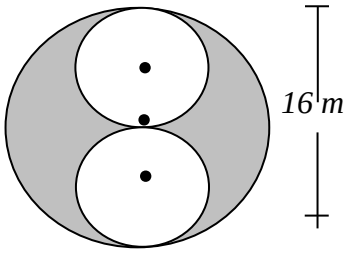
Example 1:
Circle Q is inscribed in square RSTU. Find the area of the shaded region.

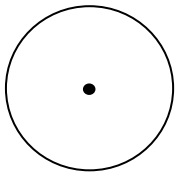
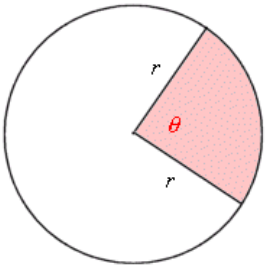


Example 2:
Find the area of the shaded region.

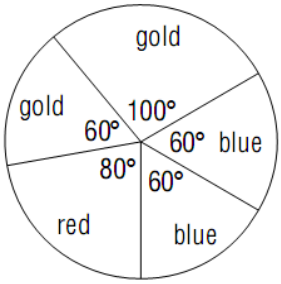


Your Turn:
Find the area of each shaded region.

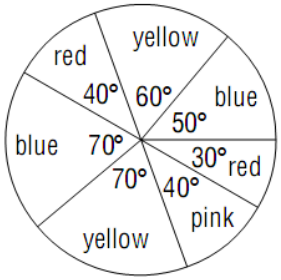


Sector of a Circle	○ A **sector** of a circle is a region of bounded by a _____ and its intercepted _____.	
Area of a Sector	A sector is a piece of the circle (like a pizza slice), so the **area of a sector** is part of the _____	

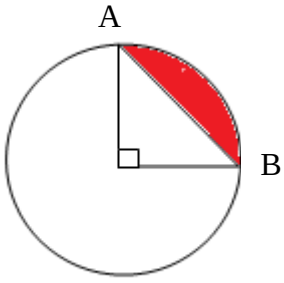
Example 3:
Find the area of the red sector in the region below. The radius of the circle is 9 inches.



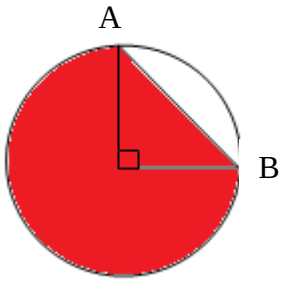
Your Turn:
Find the area of the pink sector in the region below. The diameter of the circle is 24 cm.



Example 4:
Find the area of the shaded region if AB = $15\sqrt{2}$.



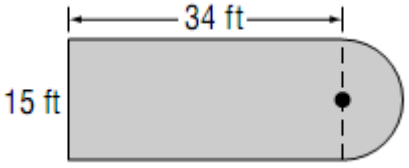
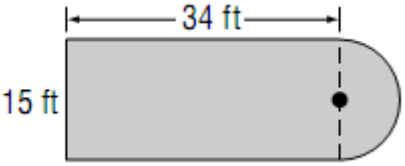
Your Turn:
Find the area of the shaded region if AB = $8\sqrt{2}$.



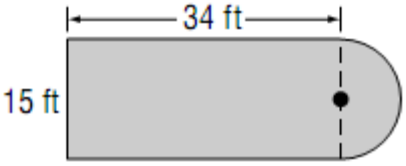
Geometry B Notes
Section 10.5

Areas of Irregular Polygons in the Coordinate Plane

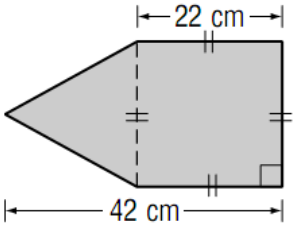
- *I can find the area of an irregular figure.*
- *I can find the area of an irregular figure on a coordinate grid.*

Term/ Concept	Definition/Example	Picture
Irregular Figure	○ An **irregular figure** is a figure that cannot be classified as one of the specific shapes that we have studied.	
Area of an Irregular Figure	○ To find the **area of an irregular figure**, separate the figure into shapes of which we can find the area.	

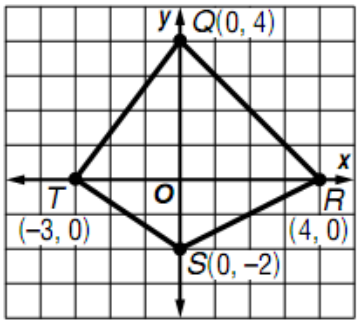
Example 1: Find the area of the figure below. Round to the nearest tenth if necessary.



Example 2: Find the area of the shaded figure below.

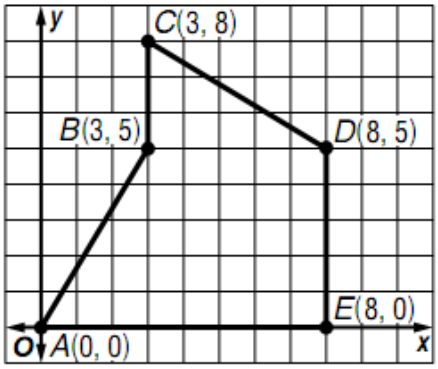


Example 4:
Find the area of the figure below. Round to the nearest tenth if necessary.



Your turn:

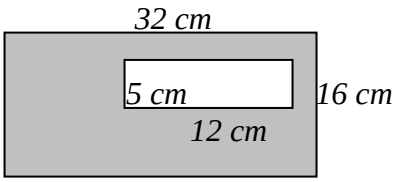
Find the area of the figure below. Round to the nearest tenth if necessary.



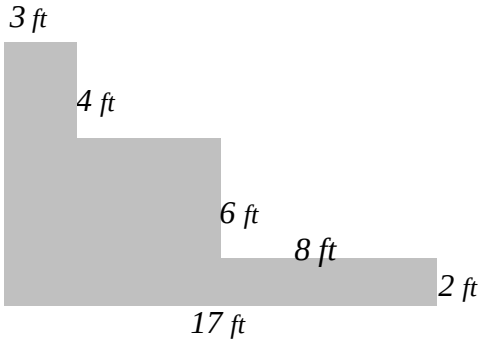
Example 5:

*Find the **perimeter** and **area** of the shaded regions.*

a)



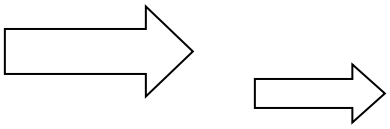
b)



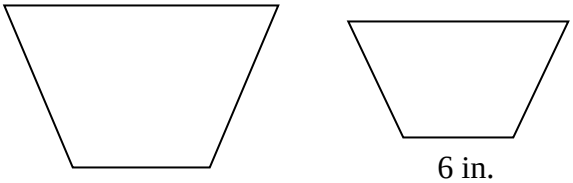
Geometry B Notes
Section 10.6

Perimeters and Areas of Similar Figures

- *I can use similarity and proportions to find perimeters and areas of similar figures.*

Similar Figures	Similar figures are figures that have the same _____, but not necessarily the same _____.	
Scale Factor of Similar Figures	If 2 figures are similar with a scale factor of a:b, then the perimeters have a ratio of _____, and the areas have a ratio of _____.	

Example 1:
The trapezoids below are similar.



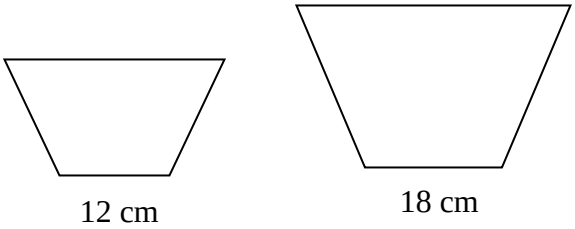
a) What is the scale factor (larger to smaller)?

b) What is the ratio of the perimeters?

c) What is the ratio of the areas?

d) If the area of the larger trapezoid is 60 in^2, find the area of the smaller trapezoid.

Your Turn:
The trapezoids below are similar.

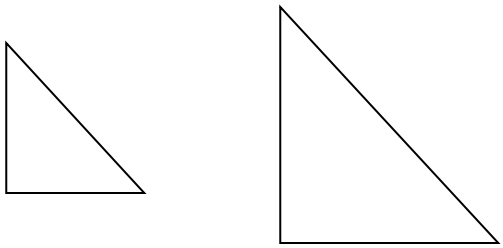


a) What is the scale factor (smallest to largest)?

b) What is the ratio of the perimeters?

c) What is the ratio of the areas?

d) If the area of the larger trapezoid is 90 cm^2, find the area of the smaller trapezoid.

Example 2: The two triangles below are similar. If the smaller triangle has an area of 50 cm^2 and the larger triangle has an area of 98 cm^2, find the scale factor and the ratio of the perimeters. 	*Example 3:* During the summer, a group of students cultivated a plot of land and harvested 13 bushels of vegetables that they donated to a food pantry. Next summer, the city will let them use a larger, similar plot of land. In the new plot, each dimension is 2.5 times larger than the plot they used this year. How many bushels can the students expect to harvest next year?
Your Turn: The areas of two similar rectangles are 1875 ft^2 and 135 ft^2. What is the ratio of their perimeters?	*Your Turn:* The scale factor of the dimensions of two similar pieces of window glass is 3:5. The smaller piece costs $2.50. How much should the larger piece cost?