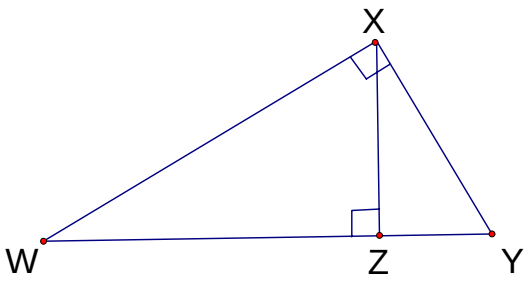
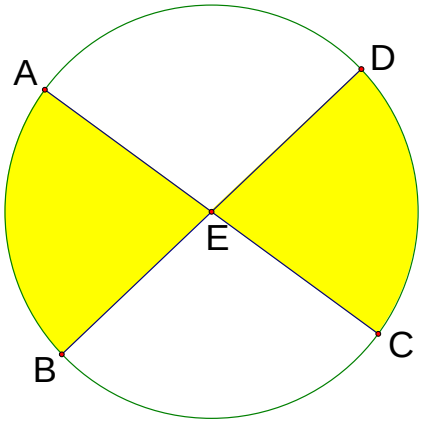
1. A regular octagon with sidelength 1 has area $2+2\sqrt{2}$. Compute the area of a regular octagon with sidelength 4.

2. In ΔXWY at right, ZY = 5 cm, and WY = 45 cm. Compute XY.



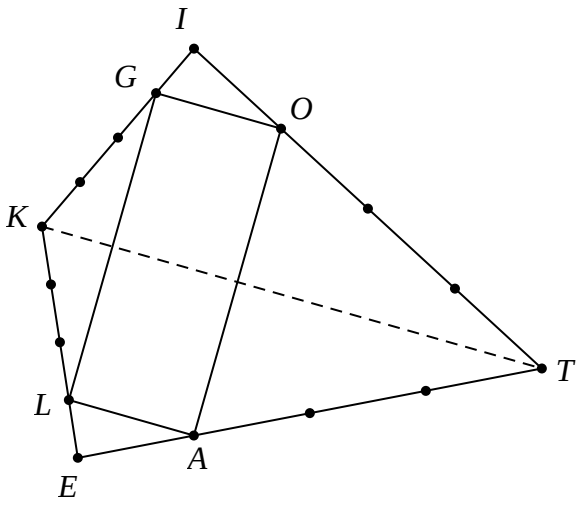
3. Circle E's radius is 6 cm and $m\angle AED = 100°$.



a. Find the area of the shaded region.

b. Find the length of minor arc AD.

4. In kite *KITE*, *KT* = 16 and *IE* = 12. The points on the sides divide each side into quarters.

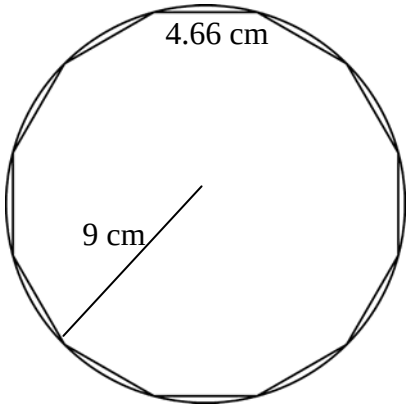


a. What kind of quadrilateral is *GOAL*? Justify your answer.

b. What is the area of *GOAL*?

c. What is the perimeter of *GOAL*? Show work!

5. The regular dodecagon with side length of approximately 4.46 cm is inscribed in a circle with radius 9 cm.



a) Find the length of an apothem.

b) Compute the area of the dodecagon to the nearest 0.01

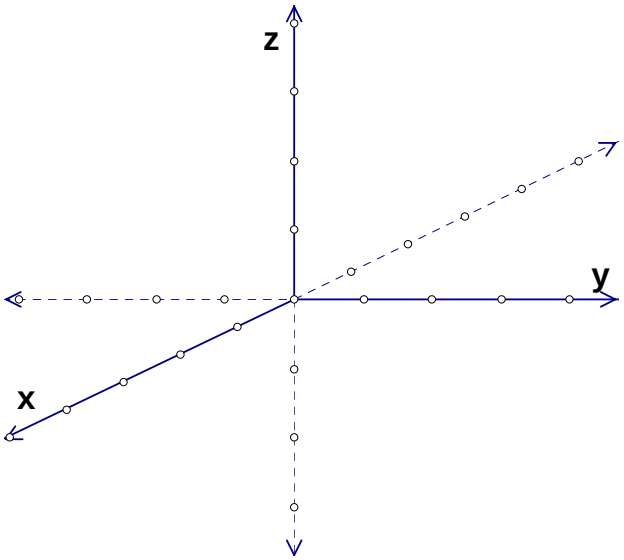
6. Looking out the window, you realize that your friend (standing next to the window) looks just about as tall as a skyscraper downtown. Your friend is 180 cm tall and is standing 6 m away from you; the skyscraper is 3 km from you. How tall, in meters, is the skyscraper?

7. On March 22, a supermarket in Johannesburg, South Africa baked what they claim is the world's largest pizza, 121 feet in diameter (picture is at right). An ordinary 18" diameter pizza uses about 0.6 pounds of cheese. To the nearest whole pound, find the number of pounds of cheese needed to cover the world's largest pizza.

8. On the graph at right, plot:

a. the point (2,3,-1) (leave trails)

b. all points such that $x = -2$, y = anything, $z = 3$.

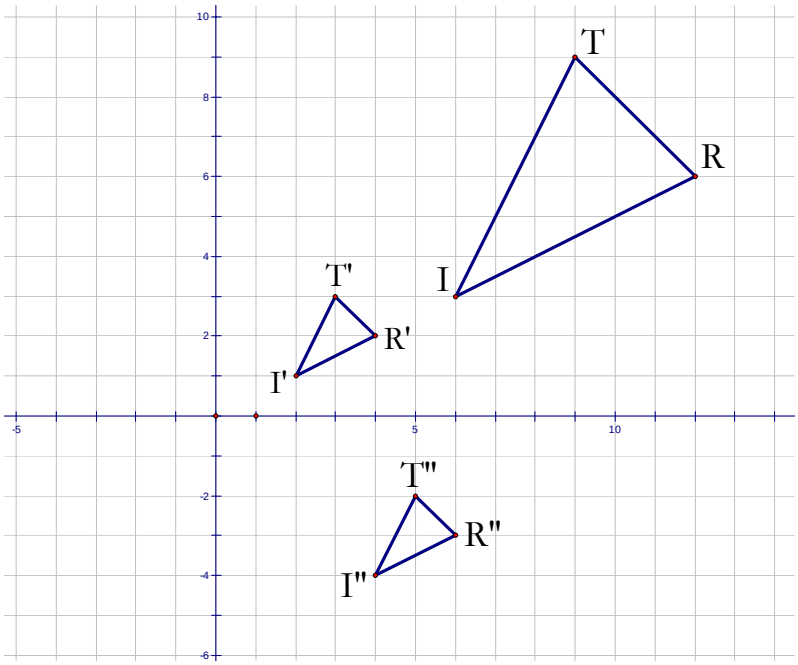


9. Use the figures on the coordinate plane to answer the questions below. If you can't figure out the whole thing, give a description & formula for the parts that make sense to you.

For the verbal descriptions, be sure to

- use geometric terminology. (i.e. translation, dilation, reflection, rotation)
- specify the direction and amount of translation
- the dilation factor
- type of reflection
- amount of rotation around which point

Examples: dilated by a factor of 4; translated 5 units to the right, etc.



a. Describe the transformation that takes ***TRI*** **to** ***T´R´I´***.

b. Write the rule for the transformation from ***TRI*** **to** ***T´R´I´***.

c. Describe the transformation that takes ***TRI*** **to** ***T´´R´´I´´***.

d. Write the rule for the transformation from ***TRI*** **to** ***T´´R´´I´´***.

10. If (6, 7) and (-1, y) are 10 units apart, find y.

11. Given $\triangle FGH$ with points $F(-4,-3),\ G(6,5),\ H(2,-1)$.

a) Find the equation of the altitude from point H.