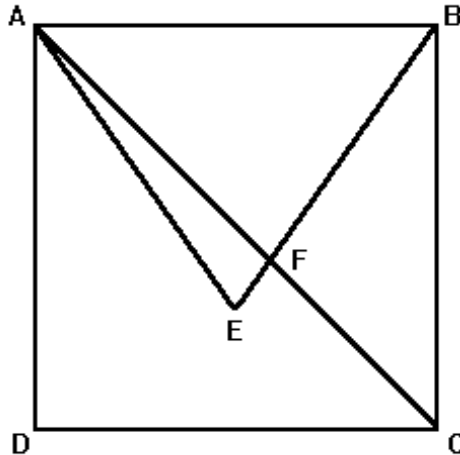
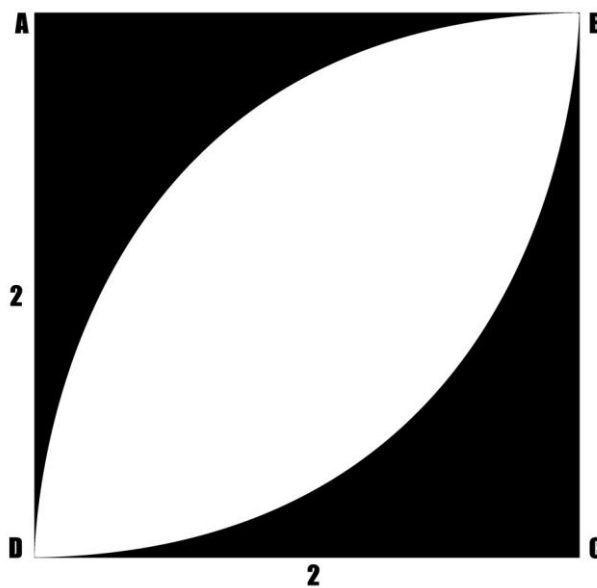


Geometry Work Samples -Practice-

1. If ABCD is a square and ABE is an equilateral triangle, then what is the measure of angle AFE? (H.1G.5)

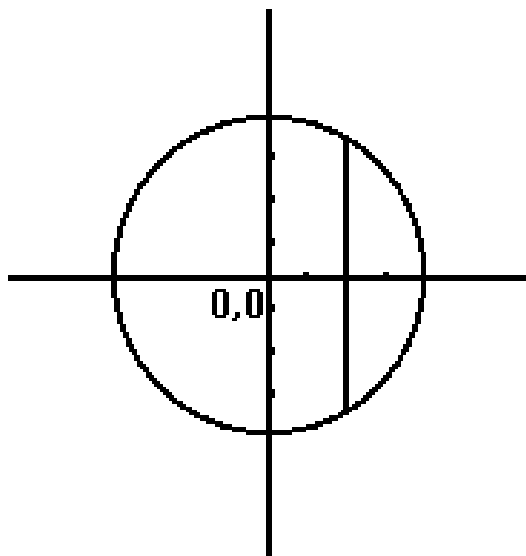


2. Square ABCD has a circular arc of radius 2 with the center at A and another circular arc with the center at C. What is the area of the shaded region? (H.1G.5)



Geometry Work Samples -Practice-

3. The algebraic equation of a circle with its center at $(0,0)$ is $x^2 + y^2 = r^2$. Given a circle of radius 4 and a chord of this circle which is the perpendicular bisector of a radius, find the length of the chord. (H.1G.7 G.SRT.8 G.C.2)

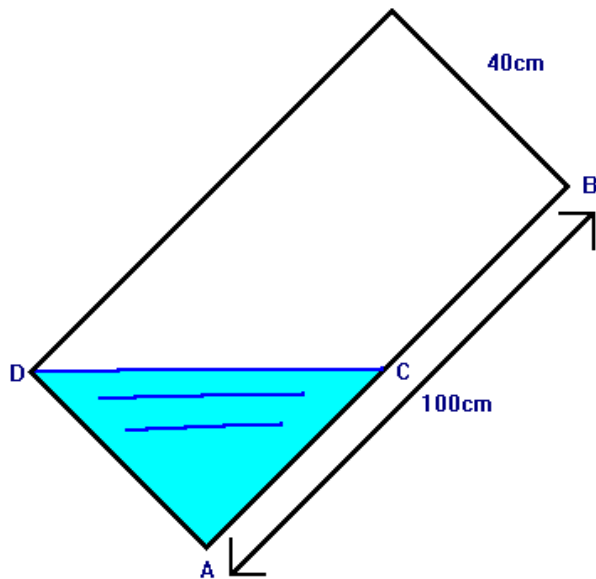


4. A ladder leans against a vertical wall. The top of the ladder is 7m above the ground. When the bottom of the ladder is moved 1m farther away from the wall, the top of the ladder rests against the base of the wall. What is the length of the ladder? (G.SRT.8 H.1G.4)

Geometry Work Samples -Practice-

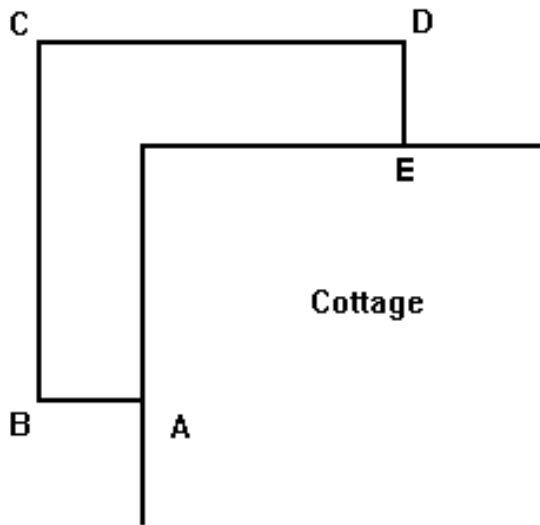
5. Faye was babysitting her two year old brother Frank. When Faye wasn't watching, Frank had taken the aquarium and tipped it on its side, so the water level was as shown. When Faye found him, she quickly grabbed the tank and returned it to a horizontal position. What was the depth of the water in the aquarium in cm if the dimensions of the tank are 100cm long, 60cm wide and 40cm high. (H.2G.2; H1G.5)

(C is the midpoint of AB)

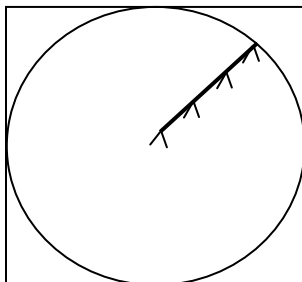


Geometry Work Samples -Practice-

6. The Rodriguez family wants to build a deck on their cottage. The architect drew them a diagram which shows it built on the corner of the cottage. A railing is to be constructed around the four outer edges of the deck. If $AB = DE$, $BC = CD$ and the length of the railing is 30 meters, then what dimensions will give the maximum area? (H.1G.5 G.MG.3)

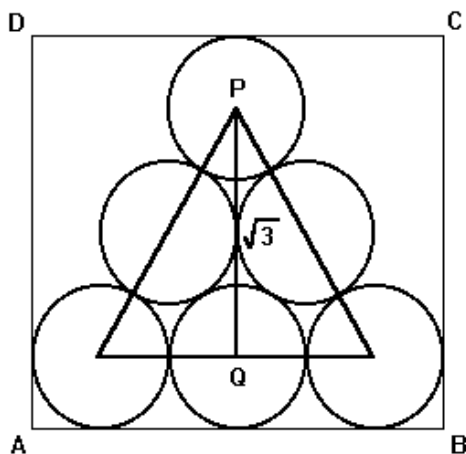


7. If the length of the hour and minute hand of a clock are 4cm and 6cm respectively, what is the distance in cm, between the tips of the hands at two o'clock? (H.1G.4 G.SRT.11)
8. A farmer has a square field with circular irrigation systems. A single sprinkler is placed on the center of the field. If the sprinkler sprays water just to the four edges of the field, what percent of the field is not watered? H.1G.5



Geometry Work Samples -Practice-

9. The distance between the center of the circles P and Q is the square root of 3 ($\sqrt{3}$). What is the area of ABCD not covered by the circles? (Hint: The circles are congruent and are tangent to each other and to the sides of the rectangle). (H.1G.4/5 G.SRT.8)



10. A right triangle in the first quadrant is bounded by lines $y = 0$, $y = x$, and $y = -x + 5$. Find its area. (H.1G.5 H2.A7)

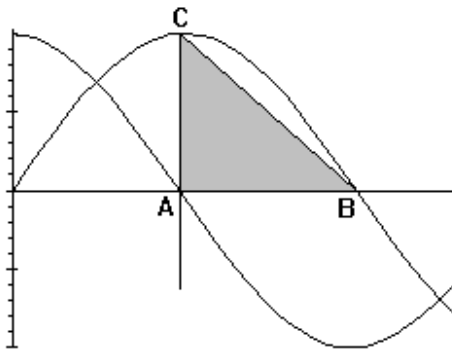
Geometry Work Samples -Practice-

11. A triangle ABC is inscribed between the graphs of a sine curve and a cosine curve.

$$f(x) = 5 \sin x$$

$$g(x) = 5 \cos x$$

If the period of both curves is 2π , find the area of triangle ABC, given point C is at the maxima of $f(x)$ and points A and B both touch $g(x)$, and $f(x)$ respectively where $g(x) = f(x) = 0$. (H.1G.5 F.IF.7.e)



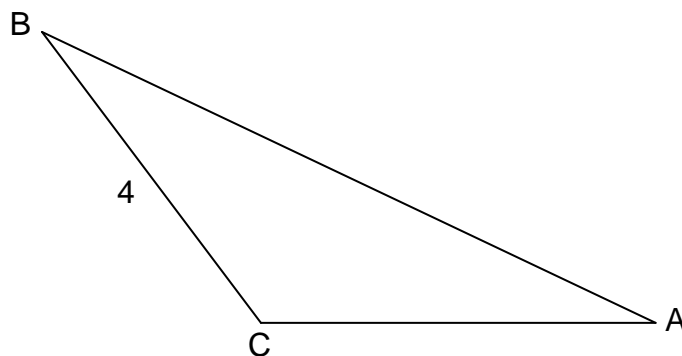
12. Find the area of triangle ABC where:

Angle ABC = 35 degrees

Angle BCA = 110 degrees

Angle CAB = 35 degrees

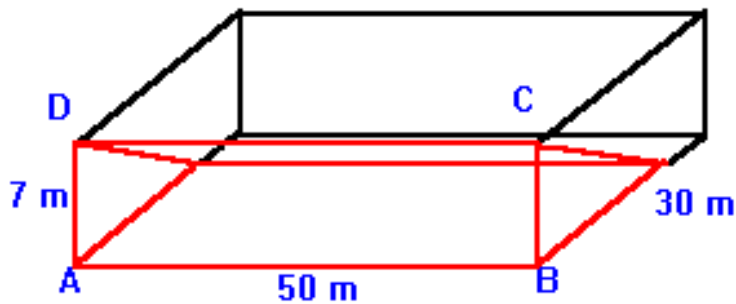
AND, length BC = 4 cm



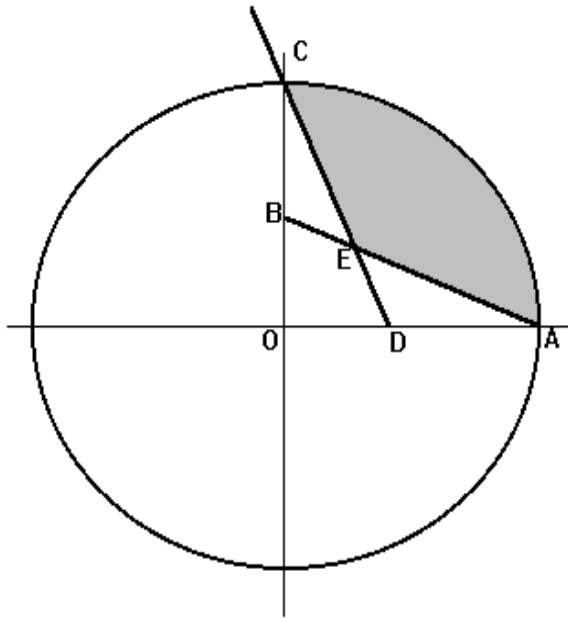
(H.1G.5 H.1G.5)

Geometry Work Samples -Practice-

13. A swimming pool is 30 m wide, 50 m long and 7 m deep. After an earthquake, the pool is tilted along one edge (AB) and the water completely covers side ABCD. At this point, $\frac{3}{4}$ of the base is covered by water. What was the water level before the earthquake? (H.2G.3)

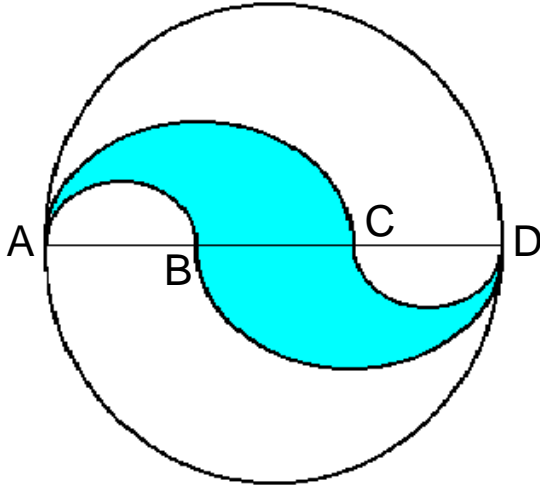


14. In this diagram the equation of the circle is $x^2 + y^2 = 16$. $D = (2, 0)$, $B = (0, 2)$, $C = (0, 4)$, $A = (4, 0)$. Find the shaded area. (H.1G.5)

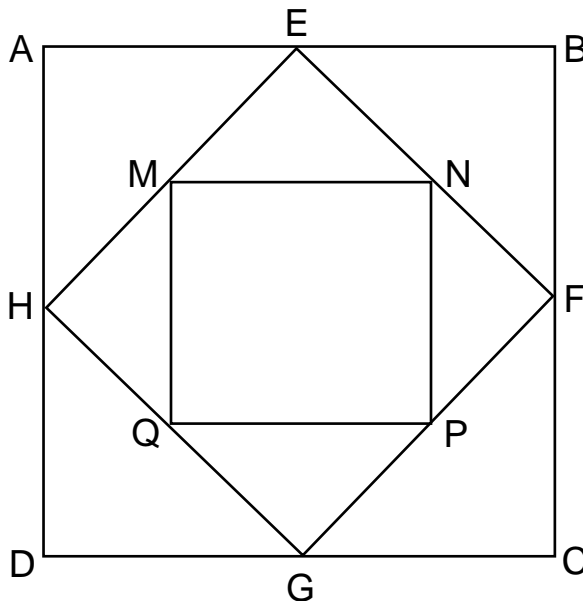


Geometry Work Samples -Practice-

15. In the figure, arcs AB, AC, BD, and CD are semicircles. If segments AB, BC, and CD each have a length 4, find the shaded area in terms of π : (H.1G.5)



16. ABCD is a square with side length of 2.
EFGH is a square with E, F, G, and H midpoints of AB, BC, CD, and DA, respectively.
MNPQ is a square with M, N, P, and Q midpoints of EF, FG, GH, and HE, respectively. If 6 more squares are constructed in the same manner, what will be the area of the last constructed square? (H.1G.5)



Geometry Work Samples -Practice-

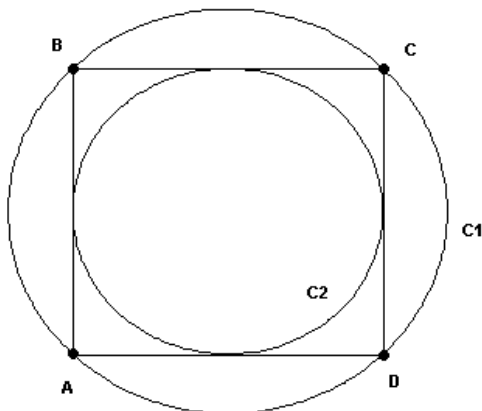
17. Mr. Jensen wants to clean the gutters on his roof. He needs to lean a ladder against the gutters to climb up to them. The gutters are 20 feet above the ground. Unfortunately, there is a 10 foot high fence standing 5 feet away from the house, so it must be placed on the outside of the fence. What is the minimum length the ladder must be to just clear the fence and just reach the gutter? (H.1G.4 G.SRT.8)

18. A quadrilateral is formed by ordered pairs: $A = (3,5)$; $B = (10,5)$; $C = (10,10)$; $D = (4,10)$.

This quadrilateral lies entirely within the square bounded by the points with ordered pairs of $W = (0,0)$; $X = (12,0)$; $Y = (12,12)$; $Z = (0,12)$

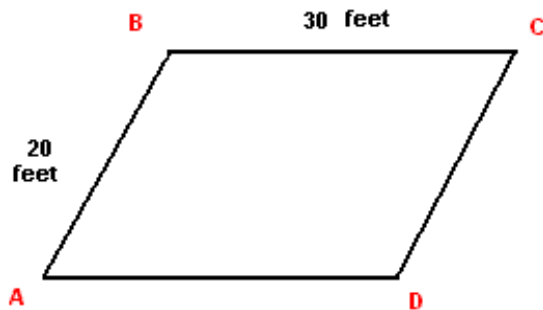
If a point in the square is chosen randomly, show what the probability is that it will be in quadrilateral ABCD. (H.1G.5; H.2S.1)

19. The square ABCD is inscribed inside the larger circle C1 and the smaller circle C2 is inscribed inside the same square. If A1 is the area of the large circle and A2 is the area of the small circle, what is the ratio $A1 / A2$? (H.1G.5 G.SRT.8)

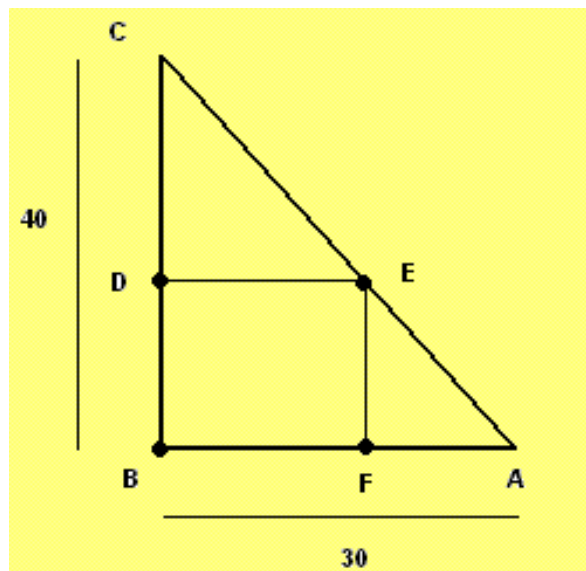


Geometry Work Samples -Practice-

20. The parallelogram shown below has an area of 300 squared feet. Find all its interior angles. (H.1G.4; H.1G.5 G.SRT.8)



21. In the figure below, BDEF is a square inscribed in the right triangle ABC. Given the sides of the triangle, find the length x of the side of the square. (H.1G3; H.1G4)



Geometry Work Samples -Practice-

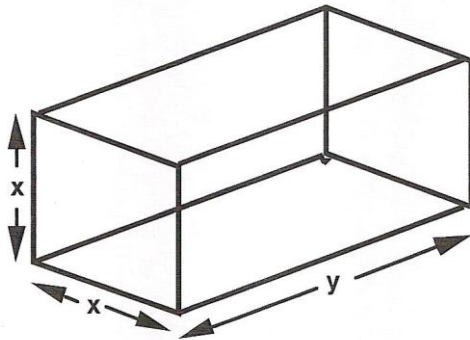
22. Which gains altitude more quickly, a plane traveling 400 mph and rising at an angle of 30 degrees, or a plane traveling 300 mph and rising at an angle of 40 degrees? How much more quickly (in mph) does it gain altitude?

(H.1G.4 G.SRT.8)

23. A client asks a company to make a large container which is a regular prism with a square cross section.

The company has only 60 meters of metal tubing in stock.

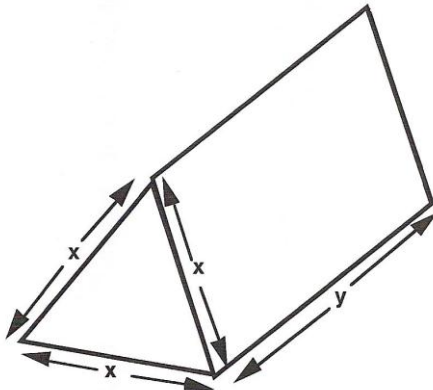
Find the dimensions of the container which holds the maximum volume the company can make using 60 meters of tubing. (H.2G.2 G.MG.3)



The Client changes his mind!

He asks for a container which is a prism with a cross section which is an equilateral triangle.

Investigate the maximum volume of the container that can be made using 60 meters of tubing for the frame.



Geometry Work Samples -Practice-

24. A soft drink company is creating a new soft drink.

The drink will be sold in a can that holds 200 cm^3 .

In order to keep costs low, the company wants to use the smallest amount of aluminum.

Find the radius and height of a cylindrical can which holds 200 cm^3 and uses the smallest amount of aluminum. Explain your reasons and show your calculations.

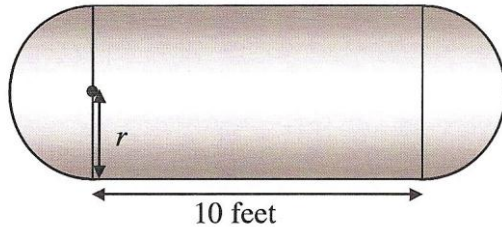
(H.2G.2 G.GMD.3)



Geometry Work Samples -Practice-

25. People who live on farms often have their own tanks of natural gas to run appliances like stoves, washers, and water heaters.

These tanks are made in the shape of a cylinder with hemispheres on the ends.



A propane tank company makes tanks with this shape, in different sizes.

The cylinder part of every tank is exactly 10 feet long, but the radius of the hemispheres, r , will be different depending on the size of the tank.

The company wants to double the capacity of their standard tank, which is 6 feet in diameter.

What should the radius of the new tank be?

Explain your thinking and show your calculations. (H.2G.2; H.3G.2 G.GMD.3)