

All answers must be exact and in simplified form (answers may contain π , simplified radicals, reduced fractions, or terminating decimals, they may NOT contain decimal approximations).

- _____ Write the slope-intercept form for the equation for the line that contains the hypotenuse of the right triangle that has vertices at $(0, 0)$, $(4, 0)$, and $(0, 3)$.
- _____ A rectangle with sides of 12 cm and 15 cm is inscribed in a circle. Find the length of the radius of the circle.
- _____ Circles A , B , and C all have radii of 6 cm and are externally tangent to each other. What is the area of ΔABC ?
- _____ What is the value of x if two angles of a triangle have measures of $3x+11$ and $5x-2$ while the remote exterior angle has a measure of $10x-9$?
- _____ Given right triangle ABC with $AB=12$, $BC=16$, and $AC=20$ what is the tangent of angle A ?
- _____ A track has straightaways that are 100 meters and curves that are 100 meter semicircles in lane one. What is the radius of the 100 meter curves?
- _____ Circle A has a radius of 18 cm. A tangent line intersects the circle at point B , and points C and D are placed on the tangent line on opposite sides of point B so that when segments are drawn from A to C and from A to D , ΔACD is equilateral. What is the length of one side of equilateral triangle ACD ?
- _____ Two spheres have volumes that are at a ratio of 9 to 16. If the radius of the smaller sphere is 3 cm, what is the radius of the larger sphere?
- _____ Right triangle ABC (with its right angle at A) is cut by a segment DE that is parallel to side BC with point D on segment AB and point E on segment AC . If segment DE is half the length of segment BC , what is the ratio of the area of ΔADE to the area of ΔABC ?
- _____ An equilateral triangle shares a side with a square and the opposite vertex of the equilateral triangle is on the midpoint of the opposite side of the square. What is the ratio of the area of the triangle to the area of the square?
- _____ Two parallel lines are cut by a transversal forming the eight angles shown. If the measure of angle a is $5x-2$ and the measure of angle g is $2x+7$. What is the value of x ?

