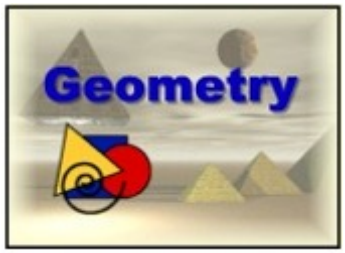
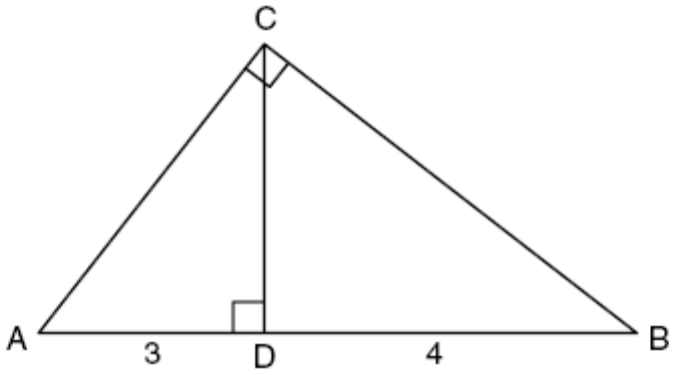


Regents Practice Test 1

Geometry

Part II: *Show work on separate paper.*

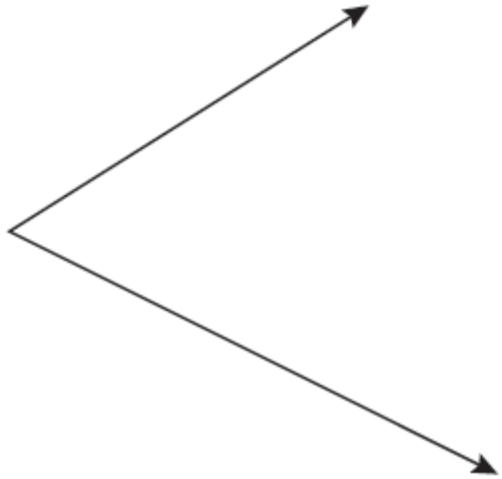
29 In the diagram below of right triangle ACB, altitude $\overline{CD}$ intersects $\overline{AB}$ at D. If $AD = 3$ and $DB = 4$, find the length of $\overline{CD}$ in simplest radical form.



30 The vertices of $\triangle ABC$ are $A(3,2)$, $B(6,1)$, and $C(4,6)$. Identify and graph a transformation of $\triangle ABC$ such that its image, $\triangle A'B'C'$, results in $\overline{AB} \parallel \overline{A'B'}$.

31 The endpoints of $\overline{PQ}$ are $P(-3,1)$ and $Q(4,25)$. Find the length of $\overline{PQ}$.

32 Using a compass and straightedge, construct the bisector of the angle shown below. [*Leave all construction marks.*]



33 The volume of a cylinder is 12,566.4 cm^3. The height of the cylinder is 8 cm. Find the radius of the cylinder to the *nearest tenth of a centimeter*.

34 Write a statement that is logically equivalent to the statement "If two sides of a triangle are congruent, the angles opposite those sides are congruent."

Identify the new statement as the converse, inverse, or contrapositive of the original statement.

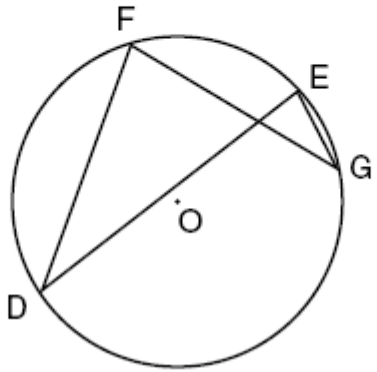
Part III:

35 On the set of axes below, graph and label $\triangle DEF$ with vertices at $D(-4,-4)$, $E(-2,2)$, and $F(8,-2)$.

If G is the midpoint of $\overline{EF}$ and H is the midpoint of $\overline{DF}$, state the coordinates of G and H and label each point on your graph.

Explain why $\overline{GH} \parallel \overline{DE}$.

36 In the diagram below of circle O, chords $\overline{DF}$, $\overline{DE}$, $\overline{FG}$, and $\overline{EG}$ are drawn such that $m\widehat{DF} : m\widehat{FE} : m\widehat{EG} : m\widehat{GD} = 5 : 2 : 1 : 7$. Identify one pair of inscribed angles that are congruent to each other and give their measure.



37 A city is planning to build a new park. The park must be equidistant from school A at (3,3) and school B at (3,–5). The park also must be exactly 5 miles from the center of town, which is located at the origin on the coordinate graph. Each unit on the graph represents 1 mile.

On the set of axes below, sketch the compound loci and label with an **X** all possible locations for the new park.

Part IV:

38 In the diagram below, quadrilateral $ABCD$ is inscribed in circle O, $\overline{AB} \parallel \overline{DC}$, and diagonals $\overline{AC}$ and $\overline{BD}$ are drawn.

Prove that $\triangle ACD \cong \triangle BDC$.