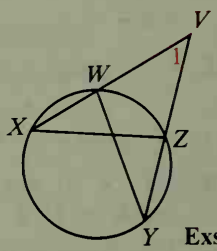
Preparing for College Entrance Exams

Strategy for Success

Often the answer to a question can be found by writing an equation or inequality and solving it. When a complete solution is time-consuming, you may find that the fastest way to answer the question is to test the suggested answers in your equation or inequality.

Indicate the best answer by writing the appropriate letter.

1. $\overline{AB}$ and $\overline{AC}$ are tangent to $\odot O$ at B and C. If $m\overset{\frown}{BC} = x$, then $m\angle BAC =$
   (A) x **(B)** $180 - x$ **(C)** $360 - x$ **(D)** $180 + x$ **(E)** $\frac{1}{2}x$
2. If quadrilateral $JKLM$ is inscribed in a circle and $\angle J$ and $\angle K$ are supplementary angles, then $\angle J$:
   (A) must be congruent to $\angle L$ **(B)** must be a right angle
   (C) must be congruent to $\angle M$ **(D)** must be an acute angle
   (E) must be supplementary to $\angle M$
3. In $\odot M$, chords $\overline{RS}$ and $\overline{TU}$ intersect at X. If $RX = 15$, $XS = 18$, and $TX:XU = 3:10$, then $XU =$
   (A) 3 **(B)** 9 **(C)** $20\frac{10}{13}$ **(D)** $25\frac{5}{13}$ **(E)** 30
4. If $m\overset{\frown}{XW} = 60$, $m\overset{\frown}{WZ} = 70$, and $m\overset{\frown}{ZY} = 70$, then $m\angle 1 =$
   (A) 45 **(B)** 50 **(C)** 60 **(D)** 65 **(E)** 70
5. If $VW = 10$, $WX = 6$, and $VZ = 8$, then $ZY =$
   (A) 4.8 **(B)** 12 **(C)** 7.5 **(D)** 20 **(E)** 16



Exs. 4, 5

6. Given $\triangle ABC$, you can find the locus of points in the plane of $\triangle ABC$ and equidistant from $\overline{AB}$, $\overline{BC}$, and $\overline{AC}$ by constructing:
   (A) two medians **(B)** two altitudes **(C)** two angle bisectors
   (D) the perpendicular bisectors of two sides **(E)** the circumscribed circle
7. To construct a tangent to $\odot R$ from a point S outside $\odot R$, you need to construct:
   (A) the perpendicular bisector of $\overline{RS}$
   (B) a perpendicular to $\overline{RS}$ at the point where $\overline{RS}$ intersects $\odot R$
   (C) a diameter that is perpendicular to $\overline{RS}$
   (D) a perpendicular to $\overline{RS}$ through point S
   (E) a 30°-60°-90° triangle with vertex S
8. The locus of points 6 cm from plane P and 10 cm from a given point J *cannot* be:
   (A) no points **(B)** one point **(C)** a line **(D)** a circle **(E)** two circles
9. The locus of the midpoints of all 8 cm chords in a circle of radius 5 cm is:
   (A) a point **(B)** a segment **(C)** a line **(D)** a ray **(E)** a circle