Preparing for College Entrance Exams

Strategy For Success

Some college entrance exam questions ask you to decide if several statements are true based on given information (see Exercises 3 and 8). In these exercises, check each statement separately and then choose the answer with the correct combination of true statements.

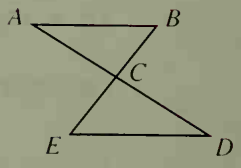
Indicate the best answer by writing the appropriate letter.

1. The measures of the angles of a triangle are $2x + 10$, $3x$, and $8x - 25$. The triangle is:
   (A) obtuse **(B)** right **(C)** acute **(D)** equilateral **(E)** isosceles

2. A regular polygon has an interior angle of measure 120. How many vertices does the polygon have?
   (A) 3 **(B)** 5 **(C)** 6 **(D)** 9 **(E)** 12

3. Plane M is parallel to plane N. Line l lies in M and line k lies in N. Which of the following statement(s) are possible?
   (I) Lines l and k are parallel. (II) Lines l and k intersect.
   (III) Lines l and k are skew.
   (A) I only **(B)** II only **(C)** III only
   (D) I and III only **(E)** I, II, and III

4. Given: $\overline{BE}$ bisects $\overline{AD}$. To prove that the triangles are congruent by the AAS method, you must show that:
   (A) $\angle A \cong \angle E$ **(B)** $\angle A \cong \angle D$ **(C)** $\angle B \cong \angle E$
   (D) $\angle B \cong \angle D$ **(E)** $\overline{AD}$ bisects $\overline{BE}$.



5. Given: $\triangle RGA$ and $\triangle PMC$ with $\overline{RG} \cong \overline{PM}$, $\overline{RA} \cong \overline{PC}$, and $\angle R \cong \angle P$. Which method could be used to prove that $\triangle RGA \cong \triangle PMC$?
   (A) SSS **(B)** SAS **(C)** HL **(D)** ASA
   (E) There is not enough information for a proof.

6. Predict the next number in the sequence, 2, 6, 12, 20, 30, 42, $\underline{\quad ? \quad}$.
   (A) 52 **(B)** 54 **(C)** 56 **(D)** 58 **(E)** 60

7. In $\triangle JKL$, $\overline{KL} \cong \overline{JL}$, $m\angle K = 2x - 36$, and $m\angle L = x + 2$. Find $m\angle J$.
   (A) 56 **(B)** 52 **(C)** 53 **(D)** 55 **(E)** 64

8. In $\triangle RST$, $\overleftrightarrow{SU}$ is the perpendicular bisector of $\overline{RT}$ and U lies on $\overline{RT}$. Which statement(s) must be true?
   (I) $\triangle RST$ is equilateral. (II) $\triangle RSU \cong \triangle TSU$
   (III) $\overrightarrow{SU}$ is the bisector of $\angle RST$.
   (A) I only **(B)** II only **(C)** III only
   (D) II and III only **(E)** I, II, and III

9. Given: $\triangle SUN \cong \triangle TAN$. You can conclude that:
   (A) $\angle S \cong \angle A$ **(B)** $\overline{SN} \cong \overline{TN}$ **(C)** $\angle T \cong \angle U$
   (D) $\overline{SU} \cong \overline{TN}$ **(E)** $\overline{UN} \cong \overline{TA}$