# Quiz 4.3: Proving Inequalities in a Triangle

Multiple Choice: *Choose the letter that corresponds to the correct answer. Write the answer in your answer sheet.*

1. If $\angle A \cong \angle ECM$, what is the reason that makes the statement $m\angle A = m\angle ECM$ true?
   A. Angle Addition Postulate
   B. Definition of Congruent Angles
   C. Segment Addition Postulate
   D. Transitive Property

2. If C lies on $\overline{BD}$, what is the reason that makes the statement $BD = BC + CD$ true?
   A. Angle Addition Postulate
   B. Definition of Congruent Angles
   C. Segment Addition Postulate
   D. Transitive Property

3. Which theorem states that if two sides of a triangle are congruent, then the angles opposite them are congruent?
   A. Angle-Side Relationship theorem
   B. Base Angles theorem
   C. Hinge theorem
   D. Triangle Inequality theorem

4. Which theorem states that in a triangle, the side opposite the larger angle is the longer side?
   A. Angle-Side Relationship theorem
   B. Base Angles theorem
   C. Hinge theorem
   D. Triangle Inequality theorem

5. Given: M is the midpoint of $\overline{AC}$ and $\overline{BE}$ What is the reason that makes the statement $\overline{AM} \cong \overline{CM}, \overline{BM} \cong \overline{EM}$ true?
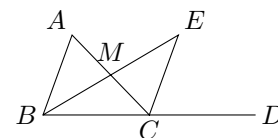
   A. CPCTC   B. Definition of Midpoint   C. Given   D. Vertical Angles theorem
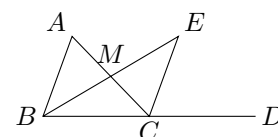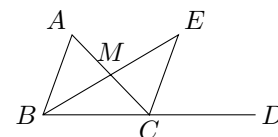
6. Given: M is the midpoint of $\overline{AC}$ and $\overline{BE}$ What is the reason that makes the statement $\angle A \cong \angle ECM$ true?

   A. Angle Addition Postulate
   B. CPCTC
   C. Law of Substitution
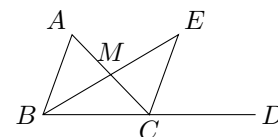   D. SAS Triangle Congruence Postulate

7. Given: M is the midpoint of $\overline{AC}$ and $\overline{BE}$ What is the reason that makes the statement $\triangle AMB \cong \triangle CME$ true?

   A. Angle Addition Postulate
   B. CPCTC
   C. Law of Substitution
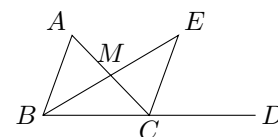   D. SAS Triangle Congruence Postulate

8. Given: M is the midpoint of $\overline{AC}$ and $\overline{BE}$ What is the reason that makes the statement $\angle AMB \cong \angle CME$ true?

   A. CPCTC   B. Definition of Midpoint   C. Given   D. Vertical Angles theorem

9. If $m\angle A = m\angle ECM$ and $m\angle ACD = m\angle ECD + m\angle ECM$, what is the reason that makes the statement $m\angle ACD = m\angle ECD + m\angle A$ true?

   A. Angle Addition Postulate
   B. CPCTC
   C. Law of Substitution
   D. SAS Triangle Congruence Postulate

10. Given: M is the midpoint of $\overline{AC}$ and $\overline{BE}$ What is the reason that makes the statement $m\angle ACD = m\angle ECD + m\angle ECM$ true?

    A. Angle Addition Postulate
    B. CPCTC
    C. Law of Substitution
    D. SAS Triangle Congruence Postulate
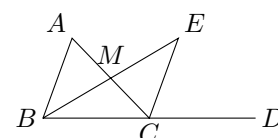
1. If $\angle A \cong \angle ECM$, what is the reason that makes the statement $m\angle A = m\angle ECM$ true?

   Solution:

   A. Angle Addition Postulate

   B. Definition of Congruent Angles

   C. Segment Addition Postulate

   D. Transitive Property

2. If C lies on $\overline{BD}$, what is the reason that makes the statement $BD = BC + CD$ true?

   Solution:

   A. Angle Addition Postulate

   B. Definition of Congruent Angles

   C. Segment Addition Postulate

   D. Transitive Property

3. Which theorem states that if two sides of a triangle are congruent, then the angles opposite them are congruent?
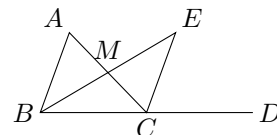
   Solution:

   A. Angle-Side Relationship theorem

   B. Base Angles theorem

   C. Hinge theorem

   D. Triangle Inequality theorem

4. Which theorem states that in a triangle, the side opposite the larger angle is the longer side?

   Solution:

   A. Angle-Side Relationship theorem

   B. Base Angles theorem
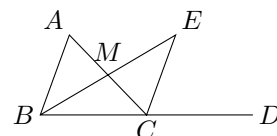
   C. Hinge theorem

   D. Triangle Inequality theorem

5. Given: M is the midpoint of $\overline{AC}$ and $\overline{BE}$ What is the reason that makes the statement $\overline{AM} \cong \overline{CM}, \overline{BM} \cong \overline{EM}$ true?

   Solution:

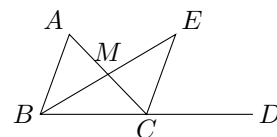   A. CPCTC   B. Definition of Midpoint   C. Given   D. Vertical Angles theorem

6. Given: M is the midpoint of $\overline{AC}$ and $\overline{BE}$ What is the reason that makes the statement $\angle A \cong \angle ECM$ true?

   Solution:

   A. Angle Addition Postulate

   B. CPCTC

   C. Law of Substitution

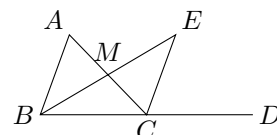   D. SAS Triangle Congruence Postulate

7. Given: M is the midpoint of $\overline{AC}$ and $\overline{BE}$ What is the reason that makes the statement $\triangle AMB \cong \triangle CME$ true?

   Solution:

   A. Angle Addition Postulate

   B. CPCTC

   C. Law of Substitution

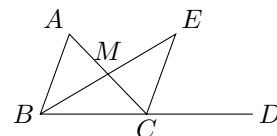   D. SAS Triangle Congruence Postulate

8. Given: M is the midpoint of $\overline{AC}$ and $\overline{BE}$ What is the reason that makes the statement $\angle AMB \cong \angle CME$ true?

   Solution:

   A. CPCTC   B. Definition of Midpoint   C. Given   D. Vertical Angles theorem
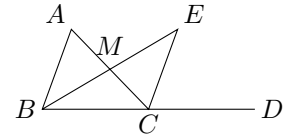
9. If $m\angle A = m\angle ECM$ and $m\angle ACD = m\angle ECD + m\angle ECM$, what is the reason that makes the statement $m\angle ACD = m\angle ECD + m\angle A$ true?

   Solution:

   A. Angle Addition Postulate

   B. CPCTC

   C. Law of Substitution

   D. SAS Triangle Congruence Postulate

10. Given: M is the midpoint of $\overline{AC}$ and $\overline{BE}$ What is the reason that makes the statement $m\angle ACD = m\angle ECD + m\angle ECM$ true?

Solution:

A. Angle Addition Postulate

B. CPCTC

C. Law of Substitution

D. SAS Triangle Congruence Postulate