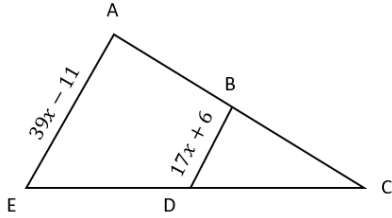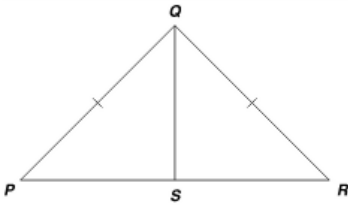# Triangles and Trigonometry

1. Segment BD is a midsegment of triangle AEC.

   What equation could be used to find the value of x?

   A. $39x - 11 = 17x + 6$

   B. $39x - 11 = 2(17x + 6)$

   C. $2(39x - 11) = 17x + 6$

   D. $2(39x - 11) = 2(17x + 6)$

2. Elizabeth wants to prove the Base Angles Theorem. Her two-column proof is shown below. Fill in the correct statements and reasons to complete Elizabeth's proof.

   Given: $\overline{PQ} \cong \overline{QR}$, $\overline{SQ}$ bisects $\angle PQR$
   Prove: $\angle P \cong \angle R$

|	Statements	Reasons
1.	$\overline{PQ} \cong \overline{QR}$	Given
2.	$\overline{SQ}$ bisects $\angle PQR$	Given
3.	$\angle PQS \cong \angle RQS$	Definition of Angle Bisector
4.	$\overline{QS} \cong \overline{QS}$	?
5.	$\triangle PQS \cong \triangle RQS$	?
6.	$\angle P \cong \angle R$	C.P.C.T.C.

   A. Reason 1: Symmetric Property
      Reason 2: Angle-Side-Angle

   B. Reason 1: Reflexive Property
      Reason 2: Angle-Side-Angle

   C. Reason 1: Symmetric Property
      Reason 2: Side-Angle-Side

   D. Reason 1: Reflexive Property
      Reason 2: Side-Angle-Side

Triangles and Trigonometry

3. Ms. Perez is building a triangular sandbox using three boards. She already has 2 boards that measure 9 feet and 12 feet. Select all the values that could represent the length of the third board of her triangular sandbox.

    A. 2 feet

    B. 3 feet

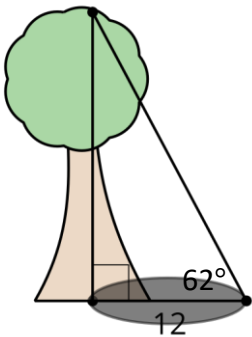   C. 10 feet

    D. 14 feet

    E. 18 feet

    F. 22 feet

4. Triangle JKL is shown below.
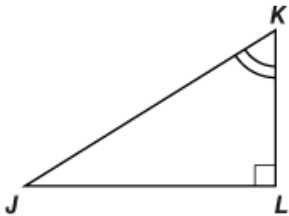
    Which ratio represents $\cos K$?

    A. $\dfrac{KL}{JL}$

    B. $\dfrac{JL}{LK}$

    C. $\dfrac{JL}{JK}$

    D. $\dfrac{KL}{JK}$

5. The sun is 62 degrees above the horizon. A tree casts a shadow that is 12 feet long. How tall is the tree?

    A. 5.6 feet.

    B. 6.4 feet.

    C. 10.6 feet.

    D. 22.6 feet.