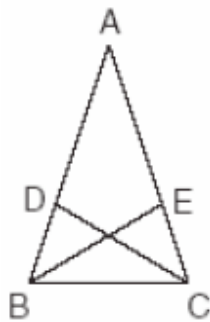


1. In the accompanying diagram of $\triangle ABC$, $\overline{AB} \cong \overline{AC}$, $BD = \frac{1}{3}BA$, and $CE = \frac{1}{3}CA$.

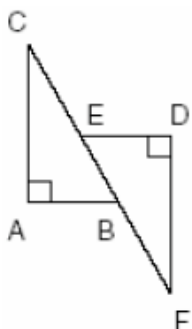


Triangle EBC can be proved congruent to triangle DCB by

- (1) $ASA \cong ASA$ (3) $HL \cong HL$
 (2) $SSS \cong SSS$ (4) $SAS \cong SAS$

1.

2. In the accompanying diagram, $\overline{CA} \perp \overline{AB}$, $\overline{ED} \perp \overline{DF}$, $\overline{ED} \parallel \overline{AB}$, $\overline{CB} \cong \overline{BF}$, $\overline{AB} \cong \overline{ED}$, and $m\angle CAB = m\angle FDE = 90$.



Which statement would *not* be used to prove $\triangle ABC \cong \triangle DEF$?

- (1) $SSS \cong SSS$ (3) $HL \cong HL$
 (2) $ASA \cong ASA$ (4) $SAS \cong SAS$

2.

3. A toy truck is located within a circular play area. Alex and Dominic are sitting on opposite endpoints of a chord that contains the truck. Alex is 4 feet from the truck, and Dominic is 3 feet from the truck. Meira and Tamara are sitting on opposite endpoints of another chord containing the truck. Meira is 8 feet from the truck. How many feet, to the nearest tenth of a foot, is Tamara from the truck? Draw a diagram to support your answer.

3.

4. A small fragment of something brittle, such as pottery, is called a shard. The accompanying diagram represents the outline of a shard from a small round plate that was found at an archaeological dig.



4.

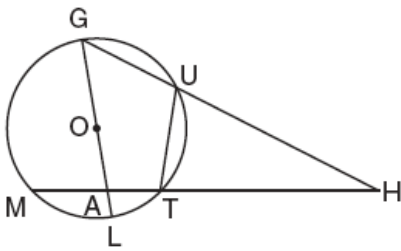
If \overline{BC} is a tangent to \widehat{AB} at B and $m\angle ABC = 45$, what is the measure of \widehat{AB} , the outside edge of the shard?

5. Point P lies outside circle O , which has a diameter of \overline{AOC} . The angle formed by tangent \overline{PA} and secant \overline{PBC} measures 30° . Sketch the conditions above and find the number of degrees in the measure of minor arc CB .

5.

6. Given circle O with diameter \overline{GOAL} ; secants \overline{HUG} and \overline{HTAM} intersect at point H ; $m\widehat{GM} : m\widehat{ML} : m\widehat{LT} = 7 : 3 : 2$; and chord $\overline{GU} \cong \text{chord } \overline{UT}$. Find the ratio of $m\angle UGL$ to $m\angle H$.

6.



7. Given: $A(1,6)$, $B(7,9)$, $C(13,6)$, and $D(3,1)$
 Prove: $ABCD$ is a trapezoid. [*The use of the accompanying grid is optional.*]

