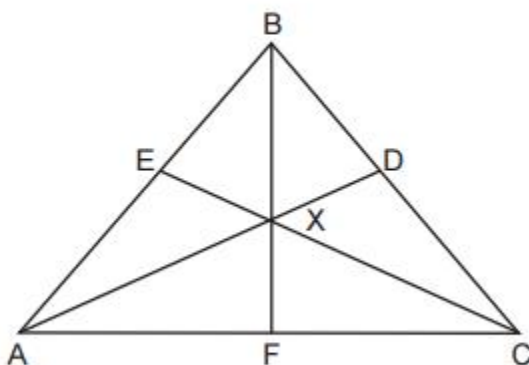Quadrilaterals Day 3 HW

1. A parallelogram is always a rectangle if

   (1) the diagonals are congruent

   (2) the diagonals bisect each other

   (3) the diagonals intersect at right angles

   (4) the opposite angles are congruent

2. In the diagram below of isosceles triangle ABC, $\overline{AB} \cong \overline{CB}$ and angle bisectors $\overline{AD}$, $\overline{BF}$, and $\overline{CE}$ are drawn and intersect at X.

If $m\angle BAC = 50°$, find $m\angle AXC$.

3. In the diagram below, $ABCD$ is a parallelogram, $\overline{AB}$ is extended through B to E, and $\overline{CE}$ is drawn.
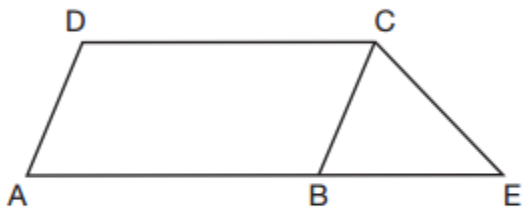
If $\overline{CE} \cong \overline{BE}$ and $m\angle D = 112°$, what is $m\angle E$?

(1) 44°   (3) 68°

(2) 56°   (4) 112°