Review for Test 5

Name Key

1. Refer to your notes. What are the possible ways to prove a quadrilateral is a parallelogram?

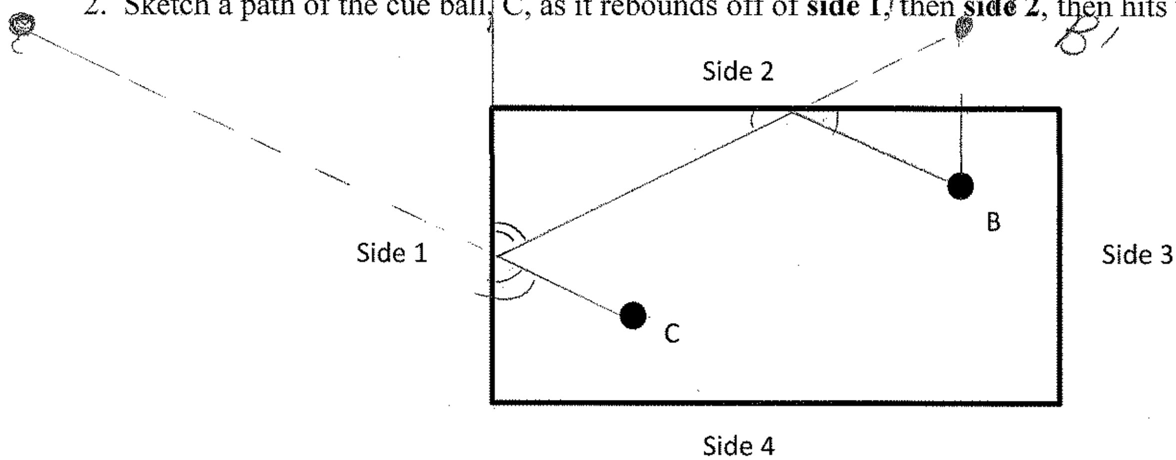
*opposite sides parallel. *opposite ∠s congruent

*opposite sides are congruent. *adjacent angles are supplimentary.

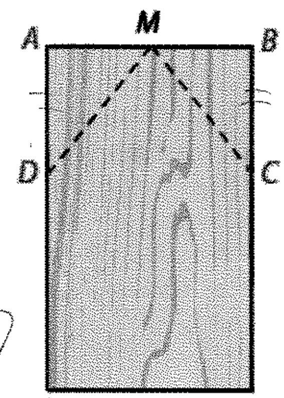
*one pair opposite sides ≅ & ∥.

2. Sketch a path of the cue ball, C, as it rebounds off of **side 1**, then **side 2**, then hits the eight ball, B.

B'' B'



3. Hannah wants to make a tessellation using pentagonal shapes cut from rectangular pieces of wood as shown to the right. She plans to cut out the shapes by first finding point M, the midpoint of the short side of the rectangle. Then she will mark points C and D so that $BC = AD$. Finally, she will make cuts along $\overline{CM}$ and $\overline{DM}$. In order for the pentagonal shapes to tessellate, $\overline{CM}$ and $\overline{DM}$ must have the same length.



Prove: $CM = DM$

Board is rectangular → m∠A = m∠B (Defn. Rectangles)

AD = BC (given)

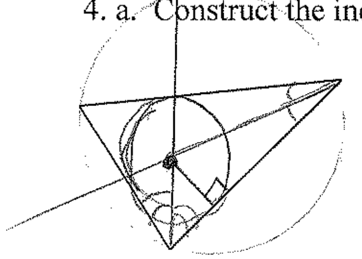
m is midpoint of AB → AM = MB (Def. mp)

→ △AMD ≅ △BMC (SAS ≅) → DM = MC (CPCTC)

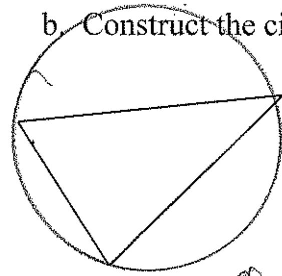
construct angle

construct perpendicular bisector

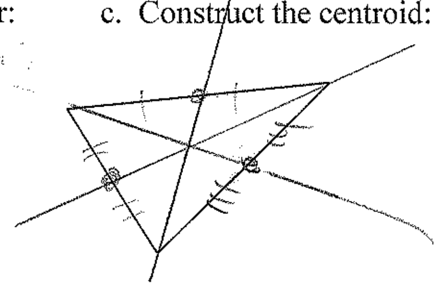
4. a. Construct the incenter:



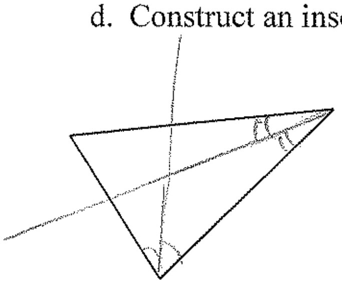
b. Construct the circumcenter:



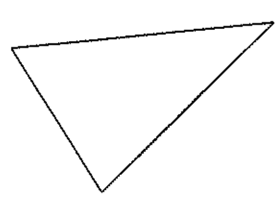
c. Construct the centroid:



d. Construct an inscribed circle:



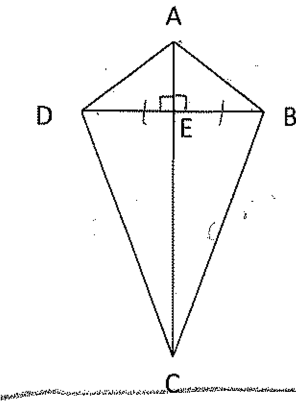
e. Construct a circumscribed circle:



5. Given: ABCD is a kite

$\overline{AC} \perp \overline{DB}$

Prove: $\overline{AE}$ is the median of ΔABD



ABCD is a kite — Given → $\overline{AC} \perp \overline{DB}$ — Properties of a kite

$AD = AB$ — given

$\Delta AED \cong \Delta AEB$ — H-L $\cong$.

$AE = AE$ — Reflexive

$DE = EB$ — CPCTC

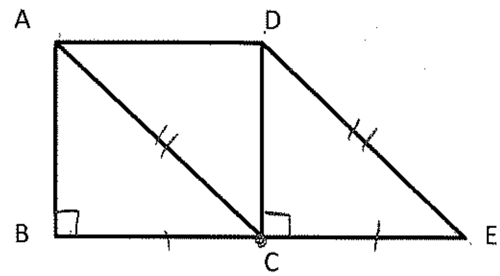
$\overline{AE}$ is median of ΔABD — Defn. median.

6. Given: $\overline{AB} \perp \overline{BC}$ and $\overline{DC} \perp \overline{CE}$

C is the midpoint of $\overline{BE}$

ADEC is a parallelogram

Prove: $\Delta ABC \cong \Delta DCE$



$\overline{AB} \perp \overline{BC}$ — given → $m\angle B = m\angle DCE = 90°$ — All $\perp \angle$'s $= 90°$.

C is the midpoint of $\overline{BE}$ — given → $BC = CE$ — Defn. mp.

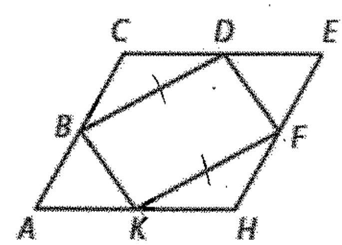
ABCD is a parallelogram — given → $AC = DE$ — Defn. //-ogram

$\Delta ABC \cong \Delta DCE$ — H-L $\cong$.

7. Given: $\Delta BCD \cong \Delta FHK$

$\overline{BD} \parallel \overline{KF}$ ← $\overline{BD} \parallel \overline{KF}$

Prove: *BDFK* is a parallelogram



$\Delta BCD \cong \Delta FHK$ — Given → $BD = KF$ — Defn. congruent Δs.

$BD \parallel KF$ → BDFK is a parallelogram

If one pair of opposite sides congruent and parallel, then //-ogram