BECA / Dr. Huson / 10th Grade Geometry
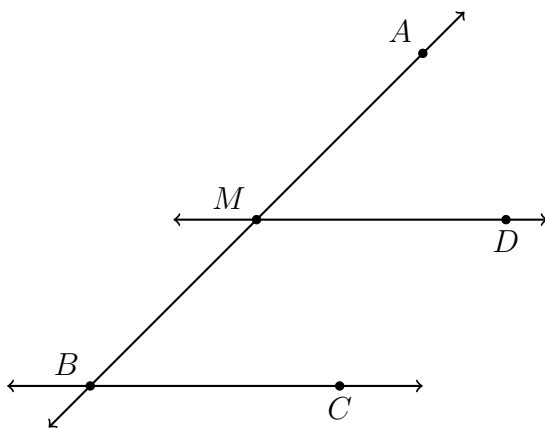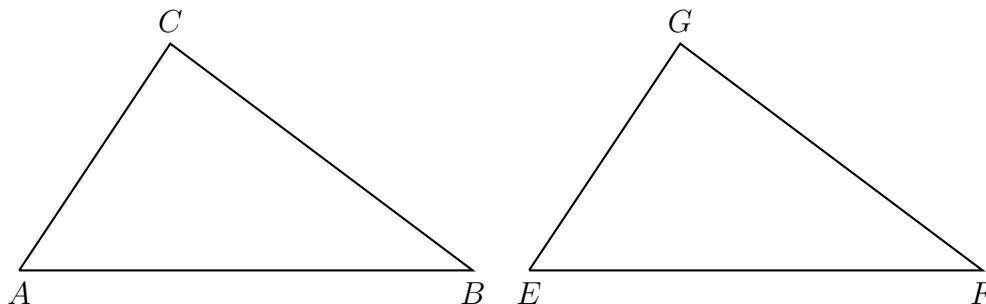5 December 2018   Name:

Do Now: Triangle congruence proofs

1. Given two parallel lines are intersected by a transversal, $\overleftrightarrow{MD}||\overleftrightarrow{BC}$. $m\angle AMD = 4x+5$ and $m\angle MBC = 5x-7$. Find $m\angle AMD$.

2. In the diagram above, the point M bisects $\overline{AB}$. If $AM = 4$ find AB.

3. Given $\triangle ABC$ and $\triangle EFG$ with $\overline{AB} \cong \overline{EF}$, $\overline{BC} \cong \overline{FG}$, and $\overline{AC} \cong \overline{EG}$. Prove $\triangle ABC \cong \triangle EFG$ (by filling in the blanks below)

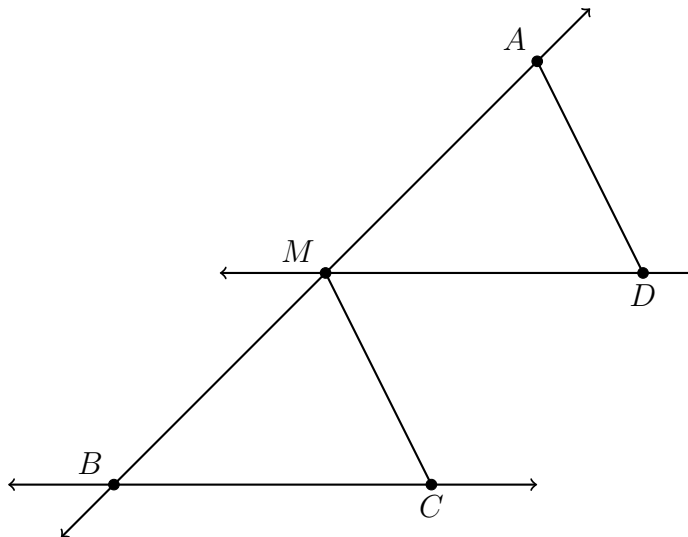| Statement	Reason
1) $\triangle ABC$, $\triangle EFG$	1) Given
2) $\overline{AB} \cong \overline{EF}$	2) _____
3) $\overline{BC} \cong \overline{FG}$, $\overline{AC} \cong \overline{EG}$	3) _____
4) $\triangle ABC \cong \triangle EFG$	4) _____

1

4. Given two parallel lines intersect a transversal, $\overleftrightarrow{MD} \| \overleftrightarrow{BC}$. Given $\overline{MD} \cong \overline{BC}$ and M is the midpoint of $\overline{AB}$.
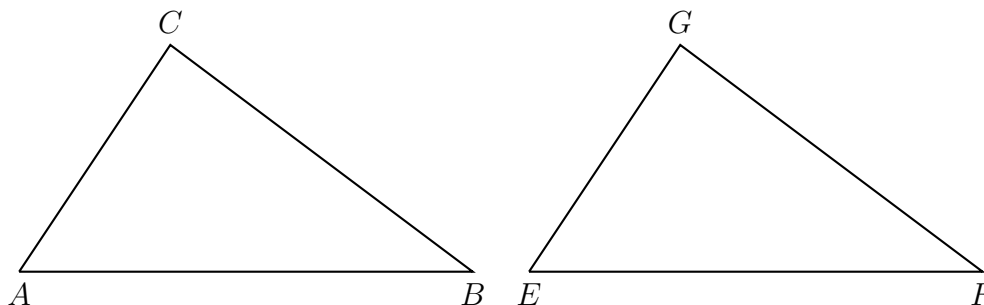   Prove $\triangle ADM \cong \triangle MCB$.

Statement	Reason
1) $\overleftrightarrow{MD} \| \overleftrightarrow{BC}$	1) _____
2) M is the midpoint of $\overline{AB}$	2) _____
3) _____ $\cong \overline{BC}$	3) Given
4) $\angle AMD \cong \angle MBC$	4) _____
5) _____ $\cong \overline{AM}$	5) Definition of a midpoint
6) $\triangle ADM \cong \triangle MCB$	6) _____

4.6 Homework: Triangle congruence proofs

1. Given $\triangle ABC$ and $\triangle EFG$ with $\angle A \cong \angle E$, $\overline{AB} \cong \overline{EF}$, and $\overline{AC} \cong \overline{EG}$. Prove $\triangle ABC \cong \triangle EFG$.

Statement

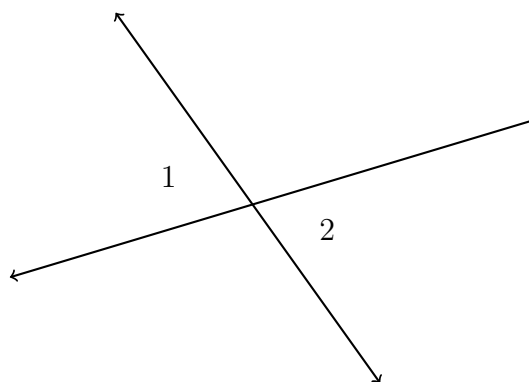1) $\triangle ABC$, $\triangle EFG$

2) $\angle A \cong \angle E$

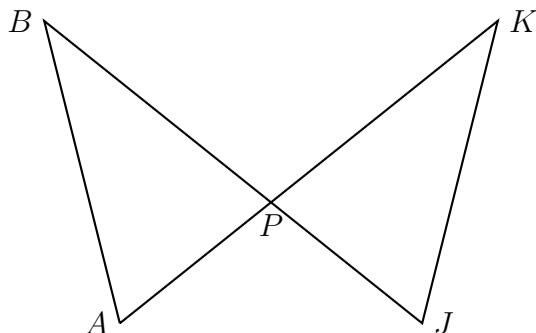3) $\overline{AB} \cong \overline{EF}$, and $\overline{AC} \cong \overline{EG}$

4) $\triangle ABC \cong \triangle EFG$

Reason

1) Given

2) ——————————

3) ——————————

4) ——————————

2. Given two vertical angles, $m\angle 1 = 5x + 9$, $m\angle 2 = 6x - 1$. Find $m\angle 1$. For full credit, check by comparing to $m\angle 2$.

3. Given $\triangle ABP$ and $\triangle JKP$ with $\angle A \cong \angle J$ and $\overline{AP} \cong \overline{JP}$. Prove $\triangle ABP \cong \triangle JKP$.

Statement	Reason
1) $\triangle ABC$, $\triangle JKP$	1) Given
2) _____	2) Given
3) $\angle APB \cong \angle JPK$	3) _____
4) $\triangle ABP \cong \triangle JKP$	4) _____

4. Express the result to the nearest thousandth.

    (a) $\cos 60° =$ (c) $\sin 41° =$

    (b) $\tan 25° =$ (d) $\cos 75° =$

5. Find the image of $A(3, 2)$ after a translation four to the right and down two.

6. Apply the translation $(x, y) \rightarrow (x - 5, y + 1)$ to the point $B(-2, -1)$.

7. State the translation that would map $C(6, 3)$ onto $C'(5, 13)$.

List of theorem/situations for $\triangle \cong$ proofs

8. Vertical angles w segment bisectors

9. Transversal corresponding

10. Transversal with shared side on transversal

11. Two inscribed in circle with vertical angles

12. Inscribed in circle triangle with external angle, showing arc measure relationship

13. Rotate triangle