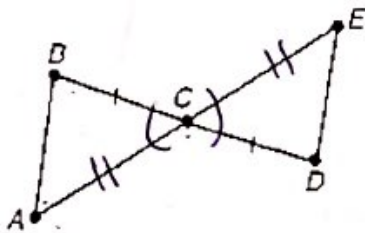


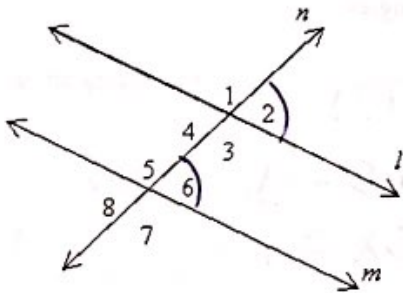
Chapter 4A Test Review

Multiple Choice (2 points each)- Identify the choice that best completes the statement or answers the question. Show ALL work to receive full credit.

1. What must be true in order for $\triangle ABC \cong \triangle EDC$ by the SAS Congruence Postulate?

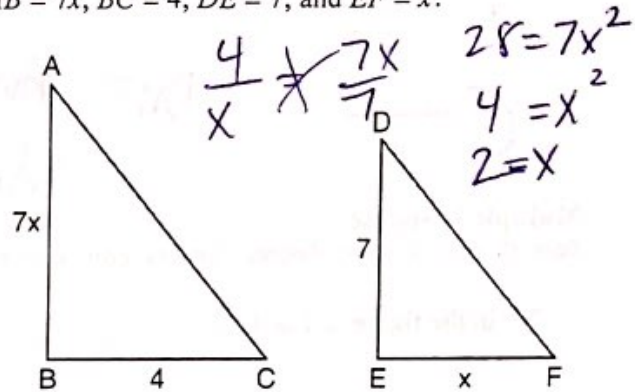


- a. $\angle B \cong \angle D$
 - b. $\angle A \cong \angle E$
 - c. $\overline{AC} \cong \overline{CE}$
 - d. $\overline{AB} \cong \overline{DE}$
2. If $\triangle ABC \sim \triangle ZXY$, $m\angle A = 50$, and $m\angle C = 30$, what is $m\angle X$?
- $180 - 80 = 100$
- a. 30
 - b. 50
 - c. 80
 - d. 100
3. In the figure, $\angle 6$ and $\angle 2$ are _____.



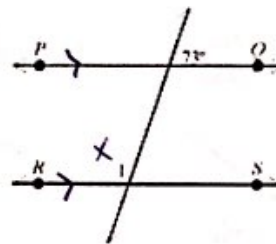
- a. alternate interior angles
- b. consecutive interior angles
- c. alternate exterior angles
- d. corresponding angles

4. As shown in the diagram below, $\triangle ABC \sim \triangle DEF$, $AB = 7x$, $BC = 4$, $DE = 7$, and $EF = x$.



What is the length of \overline{AB} ?

- a. 28
 - b. 2
 - c. 14
 - d. 4
5. Find $m\angle 1$ in the figure below. \overrightarrow{PQ} and \overrightarrow{RS} are parallel.

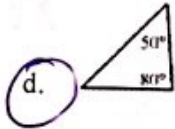
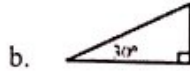


$73 + x = 180$
 $x = 107$

- a. 17°
- b. 73°
- c. 97°
- d. 107°

Name: _____

6. Which triangle is NOT similar to any of the others?

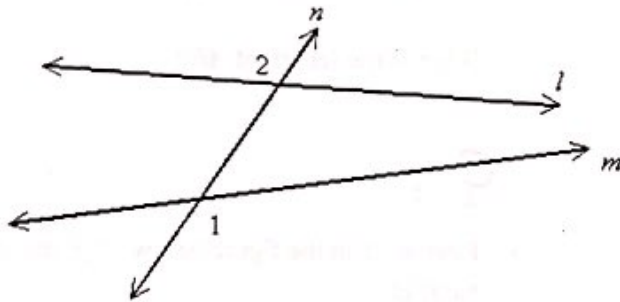


Diff Angle Measures

Multiple Response

Identify one or more choices that best complete the statement or answer the question.

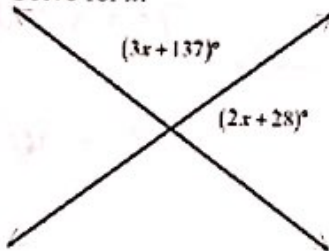
7. In the figure, $\angle 1$ and $\angle 2$ are _____.



- a. alternate exterior angles
- b. alternate interior angles

- c. consecutive interior angles
- d. corresponding angles

8. Solve for x .



$$\begin{aligned}
 3x + 137 + 2x + 28 &= 180 \\
 5x + 165 &= 180 \\
 5x &= 15 \\
 x &= 3
 \end{aligned}$$

- a. 3
- b. 6

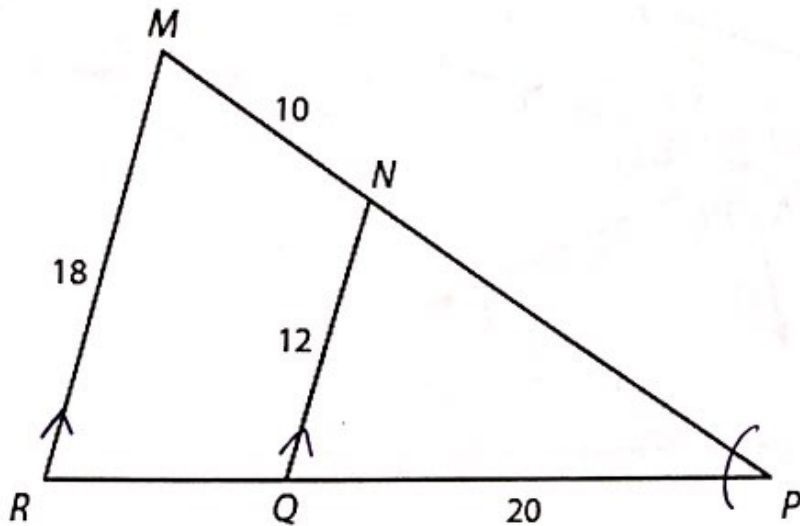
- c. 1
- d. 2

Name: _____

ID: A

Short Answer - Show ALL work to receive full credit.

9. In the diagram below, $\overline{MR} \parallel \overline{NQ}$.



a. Prove that $\triangle MPR \sim \triangle NPQ$.

S	R
1. $\overline{MR} \parallel \overline{NQ}$	1. Given
2. $\angle P \cong \angle P$	2. Reflexive Prop
3. $\angle R \cong \angle PNQ$	3. Corresp. \angle s Postulate
4. $\triangle MPR \sim \triangle NPQ$	4. AA

b. Use the given measurements to determine each of the following.

i. RP

$$\frac{12}{18} \neq \frac{20}{20+x}$$

$$12(20+x) = 360$$

$$240 + 12x = 360$$

$$12x = 120$$

$$x = 10$$

$$\boxed{RP = 30}$$

ii. NP

$$\frac{12}{18} \neq \frac{x}{x+10}$$

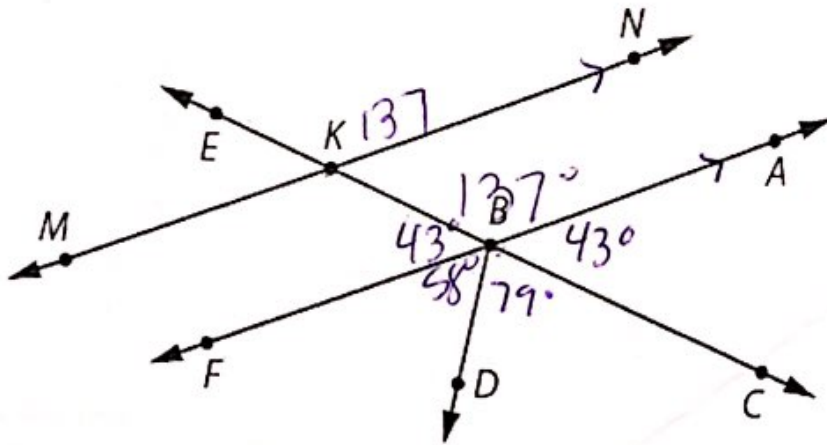
$$18x = 12x + 120$$

$$6x = 120$$

$$x = 20$$

$$\boxed{NP = 20}$$

10. In the diagram below, $\overleftrightarrow{MN} \parallel \overleftrightarrow{AF}$, $m\angle ABC = 43^\circ$, and $m\angle FBD = 58^\circ$.



Find the measure of each indicated angle. Provide reasoning to support your answers.

a. $m\angle EBF = \underline{43^\circ}$

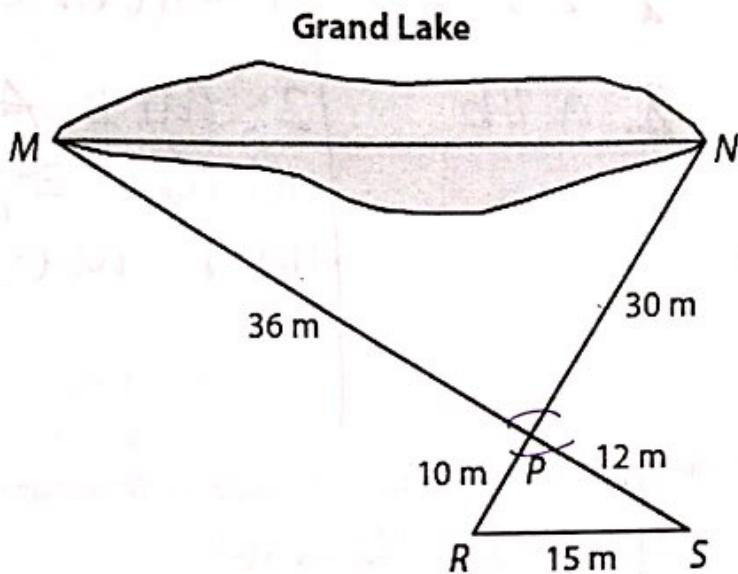
b. $m\angle EBA = \underline{137^\circ}$

c. $m\angle DBC = \underline{79^\circ}$

d. $m\angle EKN = \underline{137^\circ} \rightarrow$ corresponding angles

d. $m\angle MKB = \underline{137^\circ} \rightarrow$ vertical \angle 's

11. Maya needed to determine the longest distance across Grand Lake. She made the measurements as shown in the diagram.



$$\frac{30}{10} = 3$$

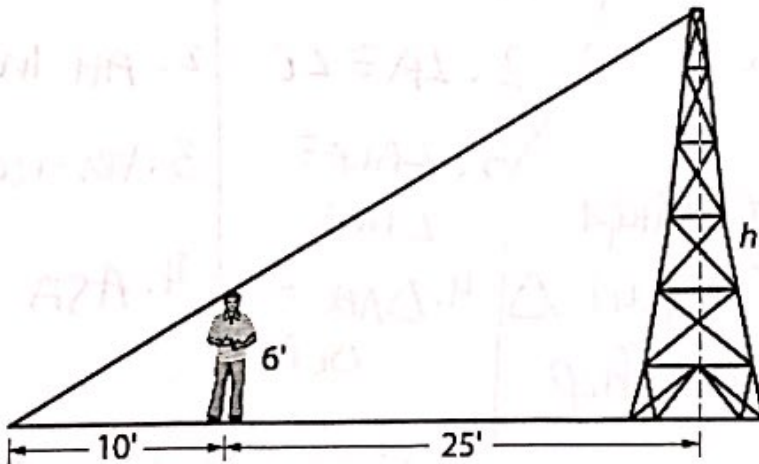
$$\frac{36}{12} = 3$$

~~AAA~~ $\frac{x}{15} = 3$
~~AAA~~ $x = 45$

2 similar sides + \cong Angle so Δ 's are \sim by SAS \sim

a. Provide an argument to justify that $\triangle NPM \sim \triangle RPS$.

12. You want to estimate the height of a tower that is supported by a wire as shown in the diagram. Suppose that Robert, who is exactly 6 ft tall, stands so that his head just touches the wire. When he does this, he is 10 ft from the point where the wire touches the ground and 25 ft from the center of the base of the tower. Use this information to determine the approximate height of the tower.



$$\frac{6}{h} = \frac{10}{35}$$

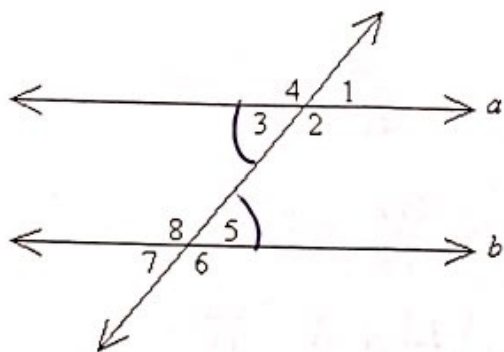
$$10h = 210$$

$h = 21 \text{ ft}$

13. Give a two-column proof of the following.

Given: $\angle 3 \cong \angle 5$

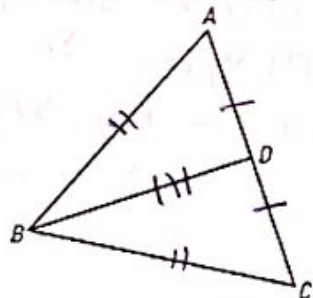
Prove: $a \parallel b$



S	R
1. $\angle 3 \cong \angle 5$	1. Given
2. $a \parallel b$	2. Alt Int \angle s are \cong , then lines are parallel

14. Given: $\triangle ABC$ is an equilateral triangle; D is the midpoint of \overline{AC}

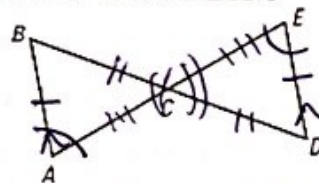
Prove: $\triangle ABD \cong \triangle CBD$



S	R
1. $\triangle ABC$ is equil. D is midpt of \overline{AC}	1. Given
2. $\overline{AD} \cong \overline{DC}$	2. Def of Midpt
3. $\overline{AB} \cong \overline{BC}$	3. Def of Equil. \triangle
4. $\overline{BD} \cong \overline{BD}$	4. Reflexive Prop.
5. $\triangle ABD \cong \triangle CBD$	5. SSS

15. Given: $\overline{AB} \cong \overline{ED}$; $\overline{AB} \parallel \overline{ED}$; C is the midpoint of \overline{BD} and \overline{EA}

Prove: $\triangle ABC \cong \triangle EDC$



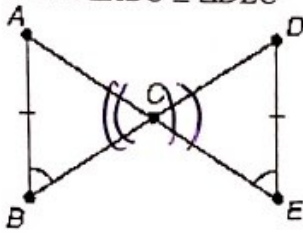
S	R
1. $\overline{AB} \cong \overline{ED}$; $\overline{AB} \parallel \overline{ED}$; C is the midpoint of \overline{BD} and \overline{EA}	1. Given
2. $\angle A \cong \angle E$	2. Alt Int \angle s
3. $\angle BCA \cong \angle DCE$	3. Vertical \angle s
4. $\triangle ABC \cong \triangle EDC$	4. ASA

* Several ways to prove this one!

16. Fill in the blanks for the statements below.

Given: $\overline{AB} \cong \overline{DE}$
 $\angle B \cong \angle E$

Prove: $\triangle ABC \cong \triangle DEC$



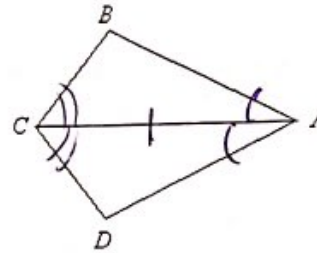
Statements	Reasons
1. $\overline{AB} \cong \overline{DE}$	1. Given
2. $\angle B \cong \angle E$	2. Given
3.	3. Vertical \angle s Thm.
4.	4. AAS Congruence Thm.

→ 3. $\angle ACB \cong \angle DCE$

4. $\triangle ABC \cong \triangle DEC$

17. Fill in the blanks for each reason below.

Given: $\angle BAC \cong \angle DAC$, $\angle DCA \cong \angle BCA$
 Prove: $\overline{BC} \cong \overline{DC}$



Statements	Reasons
1. $\angle BAC \cong \angle DAC$, $\angle DCA \cong \angle BCA$	1. Given
2. $\overline{AC} \cong \overline{AC}$	2. Reflexive Prop.
3. $\triangle ABC \cong \triangle ADC$	3. ASA
4. $\overline{BC} \cong \overline{DC}$	4. CPCTC