Warm Up
Given: $\overline{\mathrm{PS}} \cong \overline{\mathrm{QR}}, \overline{\mathrm{PQ}} \cong \overline{\mathrm{SR}}$


Prove: $\triangle P R S \cong \triangle R P Q$

Given: $\overline{\mathrm{JN}}$ Bisects $\overline{\mathrm{ML}}, \angle \mathrm{M} \cong \angle \mathrm{L}$


Prove: $\triangle M J K \cong \triangle L N K$

GOH

## Isosceles Triangle Theorem

Theorem: If two sides of a triangle are congruent, then the angles opposite them are congruent.


## Converse of the Isosceles Triangle Theorem

Theorem: If two angles of a triangle are congruent, then sides opposite them are congruent.


$$
\begin{aligned}
& \text { If }: \overline{A B} \cong \overline{A C} \\
& \text { then }: \nless B \cong ष C
\end{aligned}
$$

Example: Solve for x .


$$
6 x-8=4 x+2
$$

$$
2 x=10
$$

$$
x=5
$$



$$
2 x+2
$$

Example: Solve for angle measures 1, 2, 3 and 4.

$$
\begin{aligned}
& 50+2 x=180 \\
& 2 x=130 \\
& 180-50=\frac{130}{2} \\
& 65^{\circ}
\end{aligned}
$$

Vocab Review (You already have these in your notes from Day 1 of last unit.)

- Angle bisector - ray that divides an angle into two congruent angles
- Perpendicular bisector - line that is perpendicular to a segment at its midpoint
- Note: Does not necessarily start at or pass through the vertex of a figure.

Example \#4: $\overleftrightarrow{B D}$ is the perpendicular bisector of $\overline{A C}$. Find $A C$.


Given: $\overline{Y W}$ is a perpendicular bisector Prove: $<X Y W \cong<Z Y W$


| $\bar{W}$ is 1 <br> bisect | given |
| :--- | :--- |
| $\angle 1, L 2$ <br> are right $\angle S$ | def of 1 |
| $W$ is midst <br> of $\overline{X Z}$ | def of bisct |
| $\overline{X W \cong W z}$ | def of midpt |
| $\sqrt{W} \cong Y W$ | Reflex prop of $\simeq$ |
| $\angle I \cong c L$ | right $\angle \cong+h m$ |

Given: $\overline{P R}$ bisects $<Q P D$ and $<Q R S$
Prove $\overline{P Q} \cong \overline{P S}$


| $P \bar{R}$ bistres $\angle Q R S$ <br> ar $\angle$ RS | Given |
| :--- | :--- |
| $\angle \bar{\angle} \angle 2$ | Def of $\angle$ bise |
| $\angle 3 \cong \angle 4$ |  |

