

1. Find the equation of the line parallel to $4x + 2y = 12$ and passes through the point $(4, -6)$

$$y - y_1 = m(x - x_1)$$

$$y + 6 = -2(x - 4)$$

$$2y = -4x + 12$$

$$y = -2x + 6$$

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

$$y = -2x + 2$$

2. Find the equation of the line perpendicular to $4x + 2y = 12$ and passes through the point $(4, -6)$.

*Hint: Perpendicular lines have opposite reciprocal slopes

$$y + 6 = \frac{1}{2}(x - 4)$$

$$y + 6 = \frac{1}{2}x - 2$$

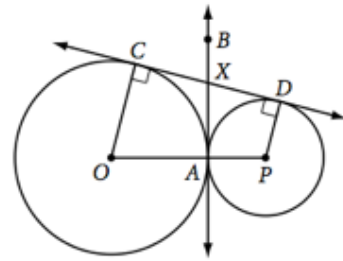
$$y = \frac{1}{2}x - 8$$

$$\frac{1}{2} = m$$

In Exercises 1–4, complete each proof with a paragraph or a flowchart.

1. **Given:** Circles O and P are externally tangent, with common tangents \overline{CD} and \overline{AB}

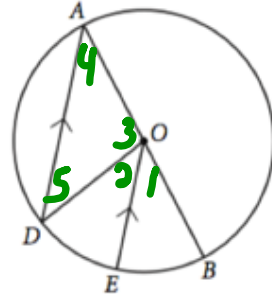
Show: \overline{AB} bisects \overline{CD} at X



Statement	Reason
Circle O & P tangent	Given
Common tangent \overline{CD} & \overline{AB}	Given
$\overline{CX} \cong \overline{XD}$	Tangent Seg Cong (9.1)
$\overline{DX} \cong \overline{XC}$	Transitive Prop
\overline{AB} bisects \overline{CD} @ X	Bisector Defn.

2. **Given:** Circle O with diameter \overline{AB} and chord \overline{AD} . $\overline{OE} \parallel \overline{AD}$.

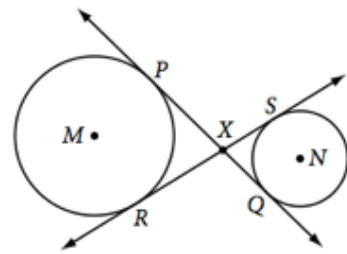
Show: $\widehat{DE} \cong \widehat{BE}$



S	R
O is Circle	Given
\overline{AB} diameter	Given
\overline{AD} chord	Given
$\overline{OE} \parallel \overline{AD}$	Given
$\angle 2 \cong \angle 5$	AIA
$\angle 4 \cong \angle 5$	Isosceles Δ Cong
$\angle 2 \cong \angle 1$	Corresponding Ang
$\angle 1 \cong \angle 5$	Transitive Prop
$\widehat{DE} \cong \widehat{BE}$	Central Angle Conge

3. **Given:** \overleftrightarrow{PQ} and \overleftrightarrow{RS} are tangent to both circles.

Show: $\overline{PQ} \cong \overline{RS}$.



4. Prove the converse of the Chord Arcs Conjecture: If two arcs in a circle are congruent, then their chords are congruent. *Hint:* Draw radii.

Given: $\widehat{AB} \cong \widehat{CD}$

Show: $\overline{AB} \cong \overline{CD}$

