Activity 3.8.2: Solving Problems Involving Angle Bisectors and Perpendicular Lines

Total points = 27

Answers

1. $\angle CBD \cong \angle ABD$ ✓
$m\angle CBD = m\angle ABD$ ✓
$3x + 10 = 2x + 30$ ✓
$3x - 2x + 10 - 10 = 2x - 2x + 30 - 10$ ✓
$x = 20$ ✓
$m\angle CBD = 3x + 10$ ✓
$m\angle CBD = 3(20) + 10$ ✓
$\boxed{m\angle CBD = 70^\circ}$ ✓

2. $\angle MPQ \cong \angle NPQ$ ✓
$m\angle MPQ = m\angle NPQ$ ✓
$3x + 9 = 5x - 5$ ✓
$3x - 5x + 9 - 9 = 5x - 5x - 5 - 9$ ✓
$\frac{-2x}{-2} = \frac{-14}{-2}$ ✓
$x = 7$ ✓
$m\angle MPN = 2(m\angle MPQ)$ ✓
$m\angle MPN = 2(3x + 9)$ ✓
$m\angle MPN = 2[3(7) + 9]$ ✓
$m\angle MPN = 2(30)^\circ$
$\boxed{m\angle MPN = 60^\circ}$ ✓

3. $\overline{SQ} \cong \overline{SE}$ ✓
$SQ = SE$ ✓
$3x + 10 = 5x$ ✓
$3x - 5x + 10 - 10 = 5x - 5x - 10$ ✓
$\frac{-2x}{-2} = \frac{-10}{-2}$ ✓
$x = 5$ ✓
$SQ = 3x + 10$ ✓
$SQ = 3(5) + 10$ ✓
$\boxed{SQ = 25}$ ✓

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