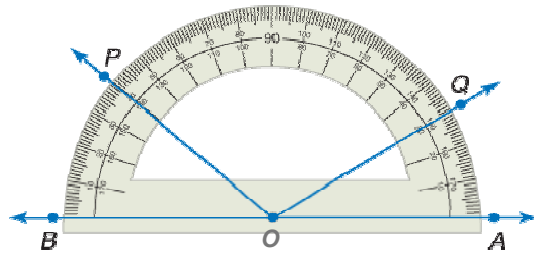


Lesson 3-2

Example 1

Use the figure, find the measure of $\angle POQ$ ($m\angle POQ$).



Solution

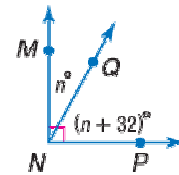
Notice that the protractor has two scales. Using the inner scale, \overline{OP} is paired with 140 and \overline{OQ} is paired with 30.
 $|140 - 30| = |110| = 110$

Using the outer scale, \overline{OP} is paired with 40 and \overline{OQ} is paired with 150.
 $|40 - 150| = |-110| = 110$

In either case, the measure of $\angle POQ$ is 110° or $m\angle POQ = 110$.

Example 2

TILING To make a decorative tile border, two tiles must be joined in the angle shown in the figure. Find $m\angle QNP$.



Solution

Since $\angle MNP$ is a right angle, the adjacent angles, $\angle MNQ$ and $\angle QNP$ are complementary. This means that the sum of their measures is 90° . Use this fact to write and solve an equation.

$$\begin{aligned} m\angle MNQ + m\angle QNP &= 90^\circ \\ n + n + 32 &= 90 && \text{Combine like terms.} \\ 2n + 32 &= 90 && \text{Subtract 32 from each side.} \\ 2n &= 58 && \text{Divide each side by 2.} \\ n &= 29 \end{aligned}$$

So, the value of n is 29. From the figure, $m\angle QNP = (n + 32)^\circ$. Substituting 29 for n , $m\angle QNP = (29 + 32)^\circ = 61^\circ$.