

Name: _____

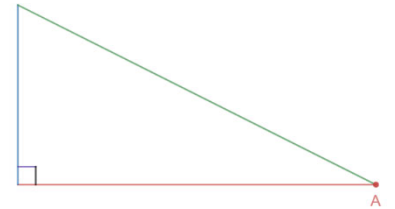
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Learning Goal 2.1

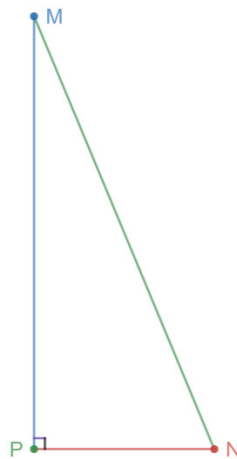
Apply the trigonometric ratios to calculate unknown lengths and angles in a right triangle.

Recall

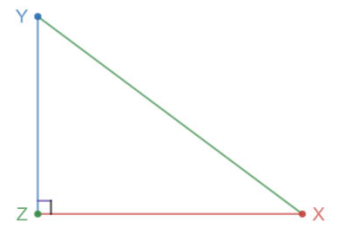
- From the point of view of $\angle A$, label the sides: opposite, adjacent, hypotenuse, and
- the Pythagorean Theorem.

**Example** Use the Pythagorean Theorem to find the length of the unknown side.

- $MP = 12$ cm
 $NP = 5$ cm



- $XY = 5$ mm
 $XZ = 4$ mm

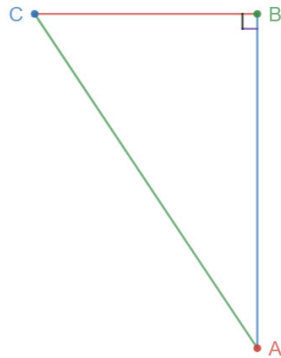
**The Tangent Ratio****Example** Using the diagrams above, write the tangent ratio for:

- $\tan M$
- $\tan N$
- $\tan X$
- $\tan Y$

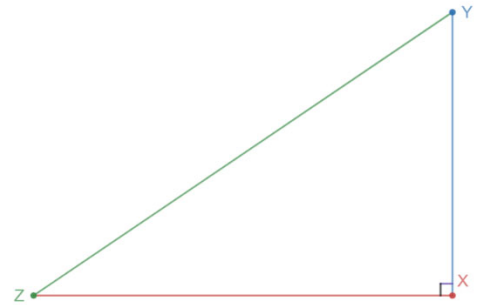
Example Using the tangent ratio, find the measure of

- $\angle A$ and $\angle C$ (round to the nearest degree).
- $\angle Z$ and $\angle Y$ (round to the nearest degree).

- $AB = 9$ mm
 $BC = 6$ mm

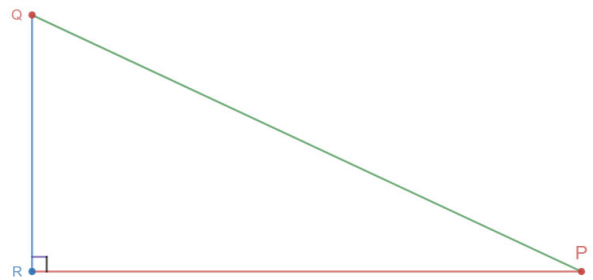


- $YZ = 10.6$ ft
 $XZ = 7.2$ ft



Example Find the indicated length.

- $\angle P = 25^\circ$
 $PR = 15$ cm
 $QR = ?$



Example A supporting cable is anchored to the ground 5 m from the base of a telephone pole. The cable is 19 m long and attached to the top of the telephone pole. What angle, to the nearest degree, does the pole make with the ground? What assumption(s) did you make in solving this problem?