

Finding the Missing Angle of a Triangle

6.10A

Expressions, equations, and relationships. The student applies mathematical process standards to use equations and inequalities to solve problems. The student is expected to: **(A) model and solve one-variable, one-step equations and inequalities that represent problems, including geometric concepts;**

7.11C

Expressions, equations, and relationships. The student applies mathematical process standards to solve one-variable equations and inequalities. The student is expected to: **(C) write and solve equations using geometry concepts, including the sum of the angles in a triangle, and angle relationships.**

8.8D

Expressions, equations, and relationships. The student applies mathematical process standards to use one-variable equations or inequalities in problem situations. The student is expected to: **(D) use informal arguments to establish facts about the angle sum and exterior angle of triangles, the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.**

My teacher's learning goals for me are that I will be able to:

- Discover the formula for calculating the measure of the exterior angle of a triangle when given the measures of the opposite interior angles.
- Use the formula to calculate the missing angle of a triangle, either opposite interior or exterior.
- Write an equation and solve it to calculate the missing measure.
- **Don't get tricked...Answer what the question is asking me to calculate!**

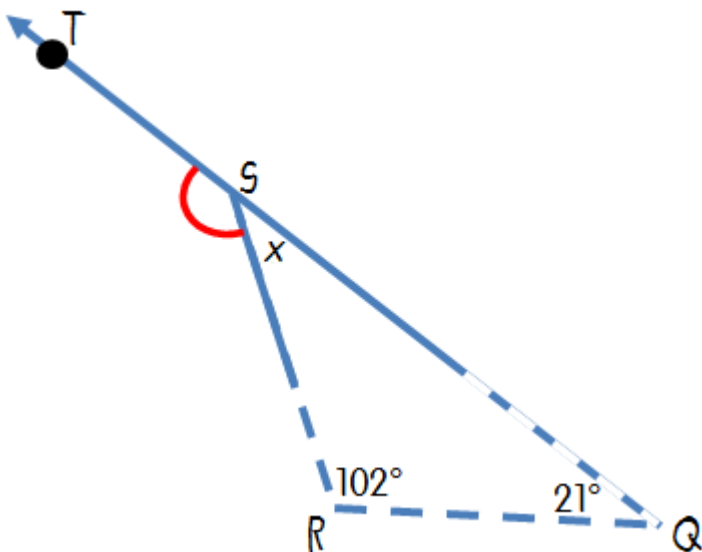
I will master the learning goals for Finding the Missing Angle of a Triangle with at least _____ mastery by:

- 1) Asking questions when I'm not sure of something and answering questions when I know the answer.
- 2) _____
- 3) _____

Exploring the Exterior and Opposite Interior Angles of Triangles

You should have your triangle that you cut out in class like the one below. $\angle R$ and $\angle Q$ should be highlighted.

Tear off $\angle R$ and $\angle Q$ from your triangle and line them up with the highlighted point touching vertex of $\angle TSR$.



What Do you notice about the two opposite interior angles and the exterior angle of the triangle?

The two opposite interior angles of a triangle are _____ to the _____ angle of a triangle.

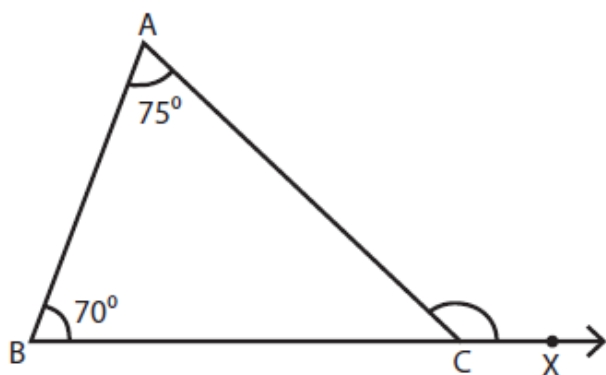
The two opposite interior angles = exterior angle and the adjacent interior angle of a triangle form a _____ when we tore them and placed them together, which is equal to _____ and is also the sum of the angles of a _____.

The formula for calculating the missing angle of a triangle when given two opposite interior angles and the exterior angle is:

$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

I do... you follow along and process

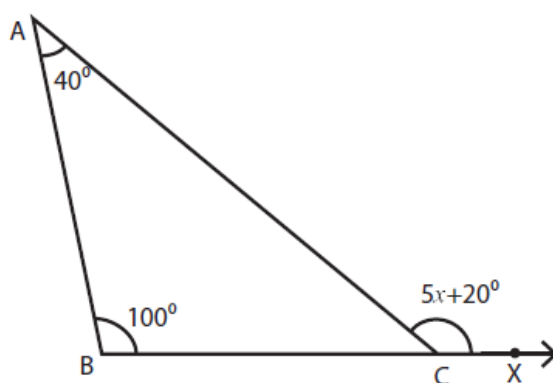
A.



$m\angle ACX =$ _____

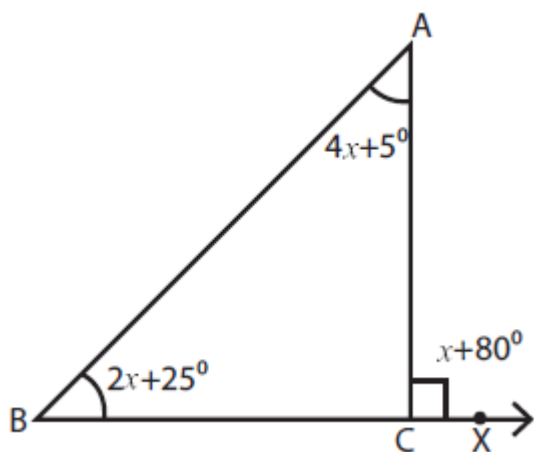
Finding the Missing Angle of a Triangle

B.



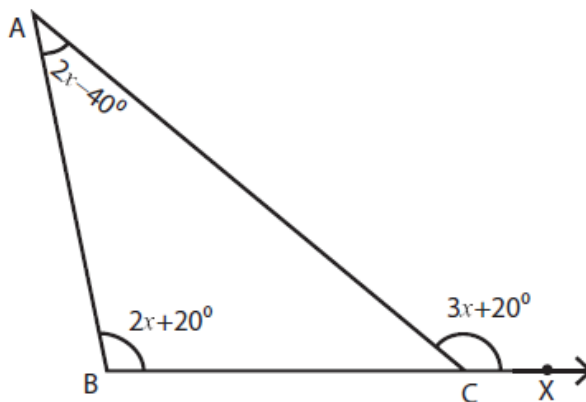
$m\angle ACX =$ _____ $x =$ _____

C.



$m\angle ACX =$ _____ $x =$ _____

D.



$m\angle ACX =$ _____ $x =$ _____

There are 6 cards per page, 1 card per student. Have students cut out and highlight $\angle R$ and $\angle Q$ before leaving class.

