

Math 7H - Unit 5

Day 2 - Angle Relationships

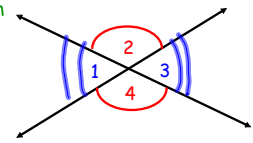
Lesson Objectives:

- I can recognize different angle relationships.
- I can use angle relationships to write and solve equations for unknown angles in a figure.

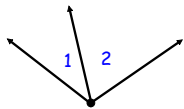
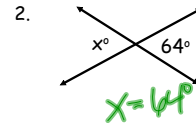
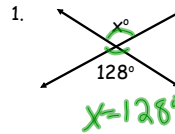
Pairs of angles often have special relationships between them.

When two lines intersect, they form two pairs of opposite angles called vertical angles.

Vertical angles are ALWAYS congruent.



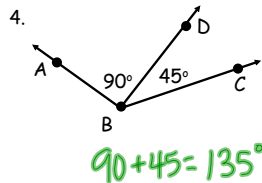
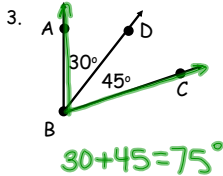
Find the value of x .



When two angles have the same vertex, share a common side, and do not overlap, they are called adjacent angles.

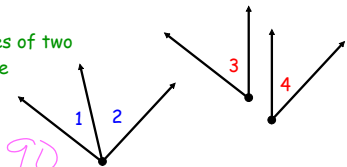
Two adjacent angles can be added together to make a larger angle.

Find the measure of Angle ABC

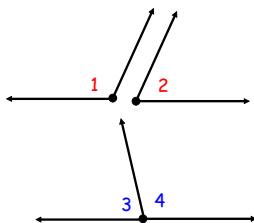
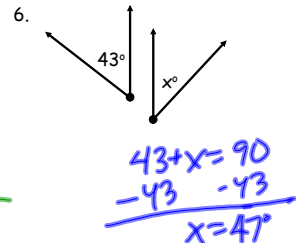
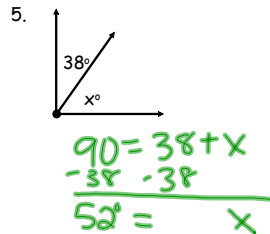


If the sum of the measures of two angles is 90° , the angles are complementary.

$$m\angle 1 + m\angle 2 = 90$$



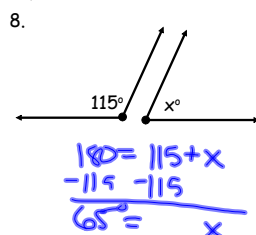
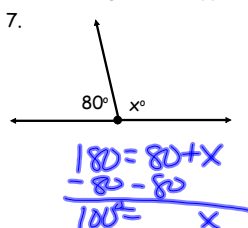
If the two angles are complementary, find the value of x .



If the sum of the measures of two angles is 180° , the angles are supplementary.

$$m\angle 1 + m\angle 2 = 180$$

If the two angles are supplementary, find the value of x .



We can write an equation to help find missing measures of angles.

If $m\angle F = 4x^\circ$ and $m\angle G = 70^\circ$, and $\angle F$ and $\angle G$ are complementary, what is the value of x ?

$$\begin{array}{r} m\angle F + m\angle G = 90 \\ 4x + 70 = 90 \\ -70 \quad -70 \\ \hline 4x = 20 \\ \frac{4x}{4} = \frac{20}{4} \\ x = 5 \end{array}$$

$\angle PQR$ and $\angle STU$ are supplementary. If $m\angle PQR = x - 15$ and $m\angle STU = x - 65$, find the measure of each angle.

$$\begin{array}{r} m\angle PQR + m\angle STU = 180 \\ (x - 15) + (x - 65) = 180 \\ 2x - 80 = 180 \\ +80 \quad +80 \\ \hline 2x = 260 \\ \frac{2x}{2} = \frac{260}{2} \\ x = 130 \end{array}$$

$m\angle PQR = x - 15 = 130 - 15 = 115^\circ$
 $m\angle STU = x - 65 = 130 - 65 = 65^\circ$

Homework

Angle Relationships WKS

* Individual Think Time *



What to do if you get stuck...

1. **Reread the problem.** Did you write it down correctly?
2. **Reread your notes.** Is there a problem similar that we did together in class?
3. **Find a problem similar in your book.** Try this one to see if it helps.
4. **Skip the problem until the end of Individual Think Time.** Then ask an "educated" question of a neighbor or Mrs. Call.

Today we're working by...

