10-2 Adjacent Angles

Digital Resources

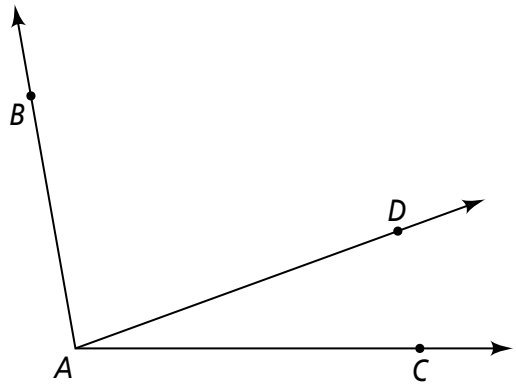
CCSS: 7.G.B.5: Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure. Also, **7.G.A.2.**

Launch

SAMPLE SOLUTIONS ARE SHOWN BELOW.

MP3, MP7

$\angle BAC$ measures 100°.



Identify at least three things that you know about the measures of $\angle BAD$ and $\angle DAC$ without measuring them.

Sample:

1. $m\angle BAD$ is less than 100° because it is a part of $\angle BAC$.
2. $m\angle DAC$ is less than 100° because it is a part of $\angle BAC$.
3. The measures of $\angle BAD$ and $\angle DAC$ together equal 100°.

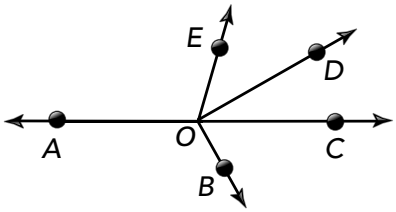
Reflect Do you need to measure both $\angle BAD$ and $\angle DAC$ to know both of their measures? Explain.

Sample: No. If you know the measure of one angle, you could subtract it from 100° to find the measure of the other angle.

Got It?

PART 1 Got It mc

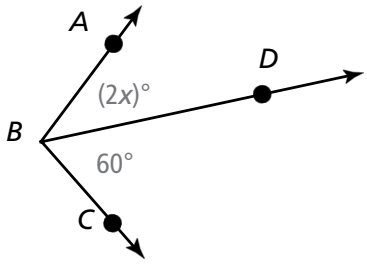
Which angles are adjacent to $\angle EOD$?



$\angle AOE$, $\angle DOC$, and $\angle DOB$

PART 2 Got It mc

The measure of $\angle ABC$ is 100°. What is the value of x?



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Close and Check

Focus Question

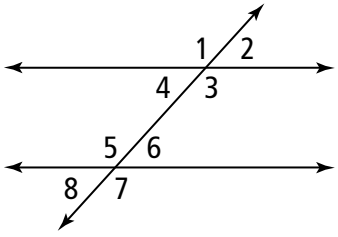
MP2, MP7

A whole is the sum of its parts. How can you apply this idea to angles?

Sample: The measures of adjacent angles can be added to find the measure of the larger angle they form. Thus, the measure of the larger angle is the sum of the measures of the angles that compose it.

Do you know HOW?

Use the diagram below for Exercises 1 and 2.



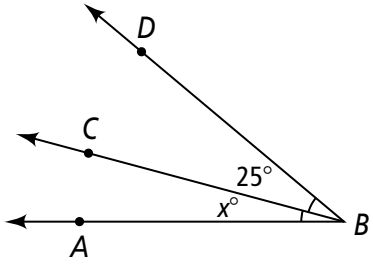
1. Name two angles adjacent to ∠2.

∠1 ∠3

2. Name two angles adjacent to ∠5.

∠6 ∠8

3. The measure of ∠*ABD* is 40°. What is the value of *x*?



x = 15

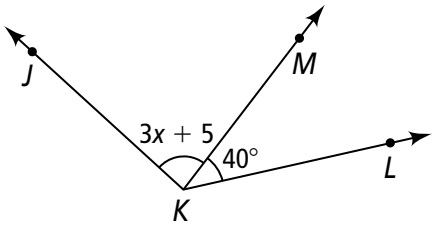
SAMPLE SOLUTIONS ARE SHOWN BELOW.

Do you UNDERSTAND?

4. Vocabulary Explain why ∠1 and ∠3 from Exercise 1 are not adjacent angles.

The angles only meet part of the definition of adjacent angles. They share a vertex, but not a side, so they are not adjacent angles.

5. Error Analysis The measure of ∠*JKL* is 125°. The equation $3x + 5 - 40 = 125$ was written to find the value of x. Is this correct? Explain.



No. The measures of ∠*JKM* and ∠*MKL* should be added to find the measure of ∠*JKL*. $3x + 5 + 40 = 125$.