Exploring Angle Pairs

Unit 1 Lesson 5

Exploring Angle Pairs

Students will be able to:

- identify special angle pairs and use their relationships to find angle measures

Key Vocabulary

adjacent angles

complementary angles

linear pair

vertical angles

supplementary angles

angle bisector

Exploring Angle Pairs

Special angle pairs can help you identify geometric relationships. You can use these angle pairs to find angle measures.

Adjacent angles are two coplanar angles with a common side, a common vertex, and no common interior points.

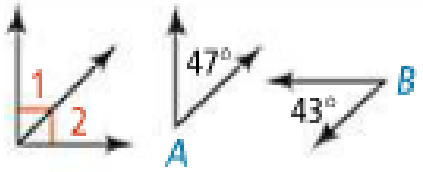
$\angle 1$ and $\angle 2$, $\angle 3$ and $\angle 4$

Vertical angles are two angles whose sides are opposite rays.

$\angle 1$ and $\angle 2$, $\angle 3$ and $\angle 4$

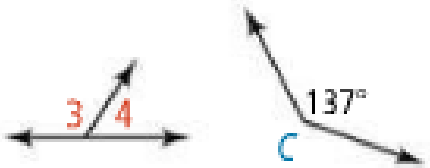
Complementary angles are two angles whose measures have a sum of 90. Each angle is called the *complement* of the other.

$\angle 1$ and $\angle 2$, $\angle A$ and $\angle B$



Supplementary angles are two angles whose measures have a sum of 180. Each angle is called the *supplement* of the other.

$\angle 3$ and $\angle 4$, $\angle B$ and $\angle C$



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Problem 1:

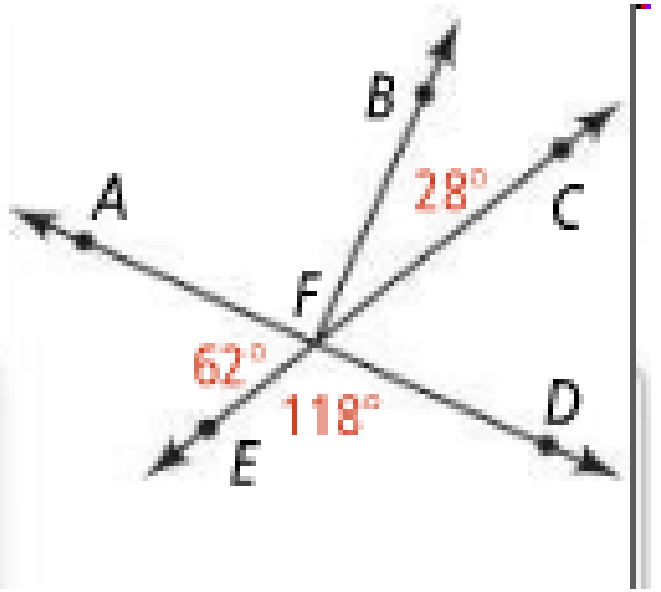
Use the diagram at the right.

Is the statement true? Expla

a. <BFD and <CFD are adjacent ar

b. <AFB and <EFD are vertical an

c. <AFE and <BFC are complemer



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Problem 2:

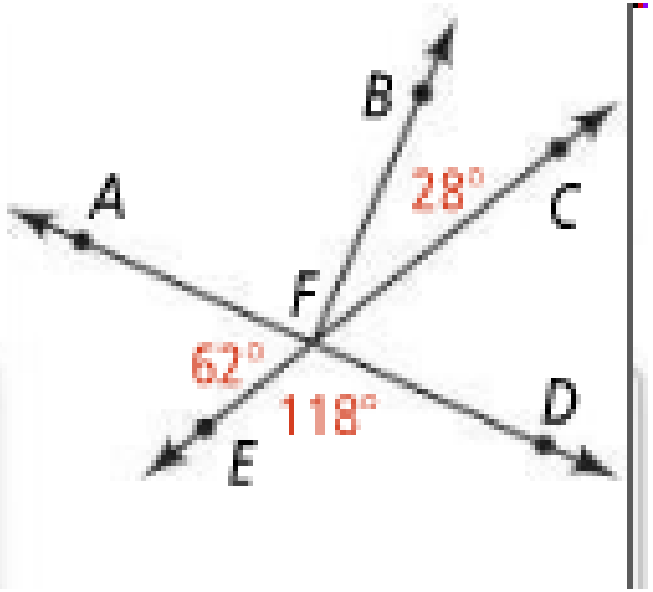
Use the diagram at the right.

Is the statement true? Ex

a. <AFE and <CFD are vertica

b. <BFC and <DFE are suppler

c. <BFD and <AFB are adjacent



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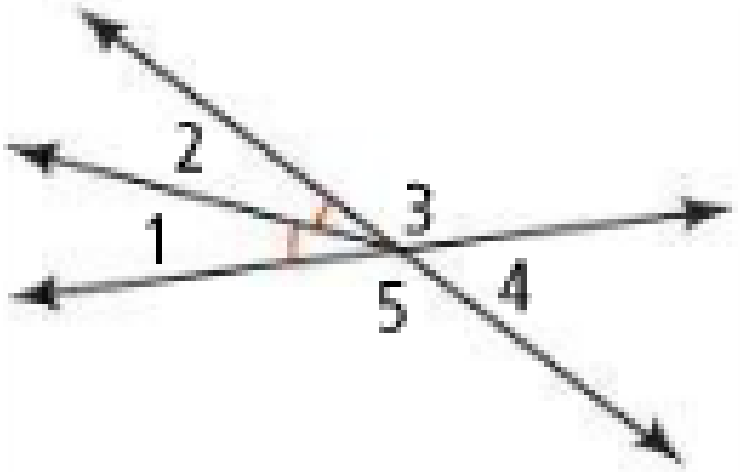
Problem 3:

What can you conclude from the information in the diagram?



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Problem 4:

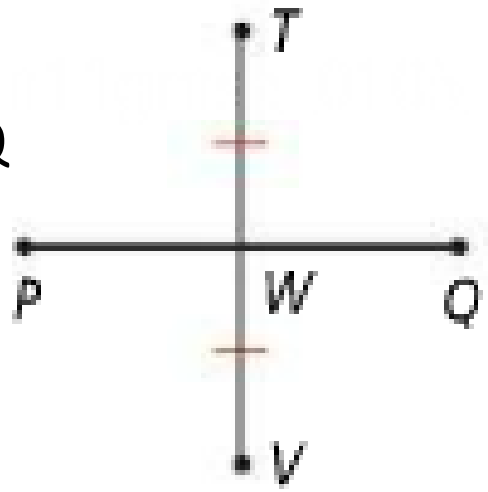
Can you make each conclusion from the information in the diagram? Explain.

a. Segment TW is congruent to Segment WV

b. Segment PW is congruent to Segment WQ

c. <TWQ is a right angle

d. Segment TV bisects Segment PQ



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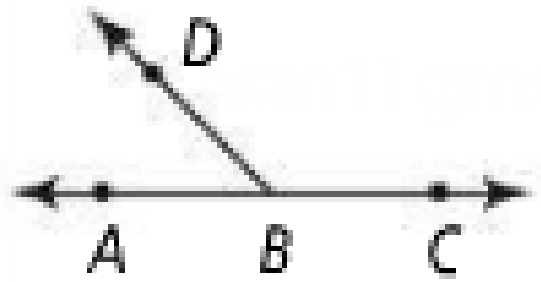
A **<u>linear pair</u>** is a pair of adjacent angles whose noncommon sides are opposite rays. The angles of a linear pair form a straight angle.



***If two angles forn** **ıre supplementary.**

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Problem 5:

<KPL and <JPL are a linear pair,

m<KPL = 2x + 24, and m<JPL = 4x + 36.

What are the measures of <KPL and <JPL?

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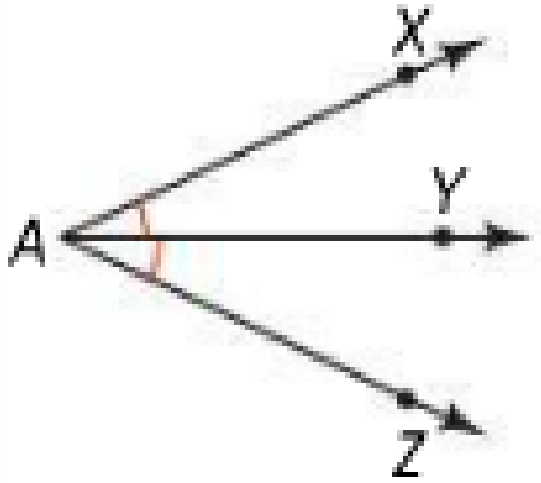
An **angle bisector** is a ray that divides an angle into two congruent angles. Its endpoint is a the angle vertex. Within the ray, a segment with the same endpoint is also an angle bisector. The ray or segment bisects the angle. In the diagram, Ray AY is the angle bisector of <XAZ, so m<XAY = m<YAZ.



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Problem 6:

Ray AC bisects <DAB. If m<DAC = 58, what is m<DAB?