

(DN) Make 3 sketches: one that shows corresponding angles, one that shows alternate interior angles, and one that shows alternate exterior angles.

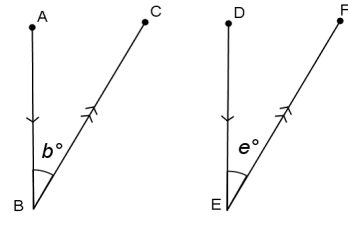
Name _____ Per _____

LO: I can add auxiliary lines to diagrams and use angle relationships to prove statements.

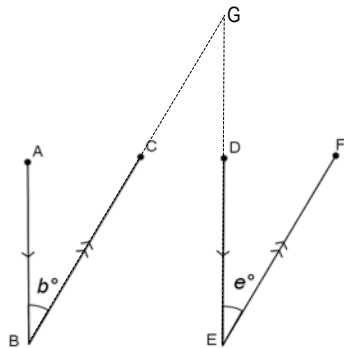
(1) transparenties, dry erase markers, erasers compass

Angles: Exterior angle theorem: Proof by constructing a parallel line.

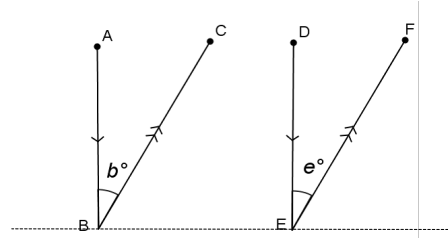
Prove that the measures of angles B and E are equal. Extend lines or add auxiliary lines to help you.



Brianna's diagram



Tramaine's diagram



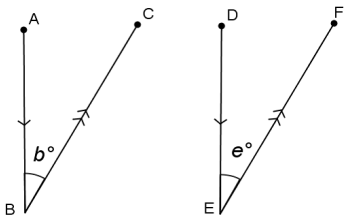
Describe Brianna's additions to the diagram

Describe Tramaine's additions to the diagram

Brianna says she can use alternate interior angles to write her proof. Do you agree with her? Why or why not?

Tramaine says he can use corresponding angles to write his proof. Do you agree with him? Why or why not?

Choose ONE of their drawings and prove that the measure of angle B is equal to the measure of angle E. Add letters to the diagram where needed to help you write the proof



_____ because _____

_____ because _____

_____ because _____

_____ because _____

_____ because _____

(2)

transparencies, dry erase markers, erasers

Angles: Proving relationships

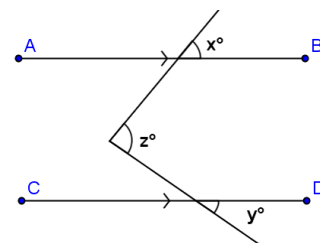
The diagrams that Brianna and Tramaine could BOTH be used to write the proof.

Like problem #1, there is more than one way to add to the diagram at right

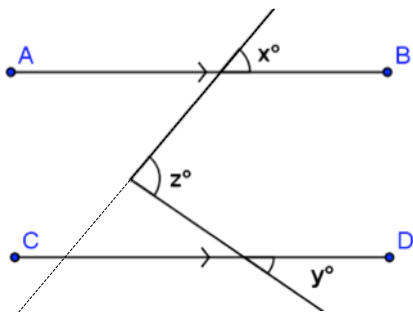
to prove the statement below.

Given: $\overline{AB} \parallel \overline{CD}$

Prove: $z = x + y$



The three diagrams below have different extensions or auxiliary lines drawn. Add the letters a and b to each diagram to help you write the proof.



THINK: Angle z is an interior/exterior (circle one) angle of the triangle formed.

An _____ angle of a triangle is equal to the sum of the _____ angles. If we can get the remote interior angles to be the same measures as _____ and _____, then we can prove that $z = x + y$

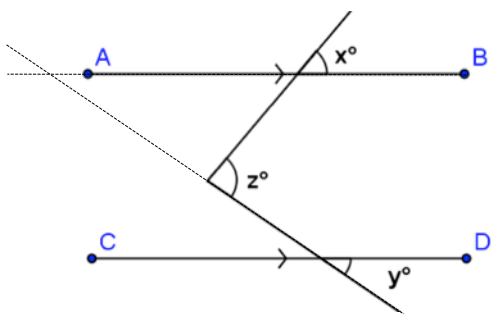
PROOF:

(1) $a = x$ because the angles are corresponding (add a to the diagram)

(2) $b = y$ because they are vertical (add b to the diagram)

(3) _____ + _____ = z because of the _____ thm.

(4) _____ + _____ = z because equal values can be substituted.



THINK: Angle z is an interior/exterior (circle one) angle of the triangle formed.

An _____ angle of a triangle is equal to the sum of the _____ angles. If we can get the remote interior angles to be the same measures as _____ and _____, then we can prove that $z = x + y$

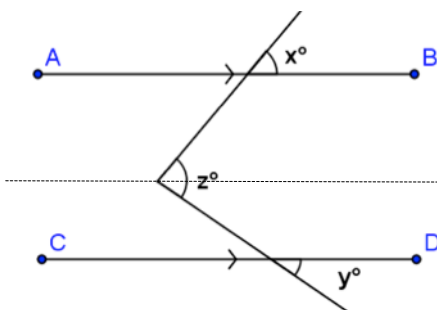
PROOF:

(1) $a = x$ because the angles are _____ (add a to the diagram)

(2) $b = y$ because they _____ (add b to the diagram)

(3) _____ + _____ = z because of the _____ theorem.

(4) _____ + _____ = z because equal values can be _____.



THINK: Angle z is composed of _____ adjacent angles. If we can prove that one of the angles is congruent to _____ and the other is congruent to _____ then we can prove that $z = x + y$

PROOF:

(1) $a = x$ because the angles are _____ (add a to the diagram)

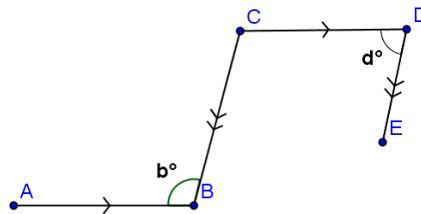
(2) $b = y$ because the angles are _____ (add b to the diagram)

(3) _____ + _____ = z because the measure of an angle is equal to the sum of the _____ angles that make up the larger angle.

(4) _____ + _____ = z because _____.

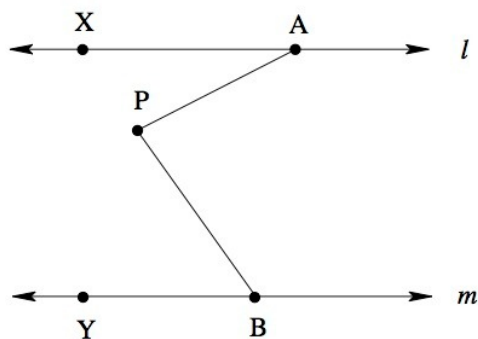
(4) **Exit Ticket**

In the figure, $AB \parallel CD$ and $BC \parallel DE$. Prove that $b + d = 180$.



(5) **Homework**

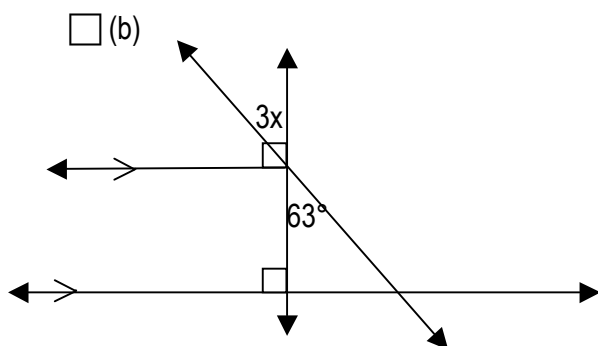
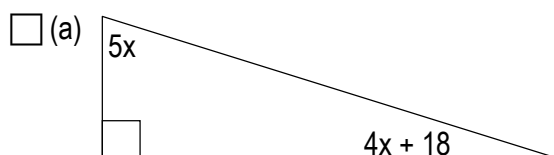
(1) PROVE: $\angle XAP + \angle YBP = \angle APB$



I know that ...

because ...

(2) Find the measure of x in each diagram. State a reason for each step that you take.



(5) Homework
cont.

