Geometry Regents Lomac 2015-2016	Date 10/28	due 10/29	Using Angle Relationships and auxiliary lines	3.3R

Name _____ **Per**_____

LO: I can solve problems involving angles formed by transversals and explain my reasoning.

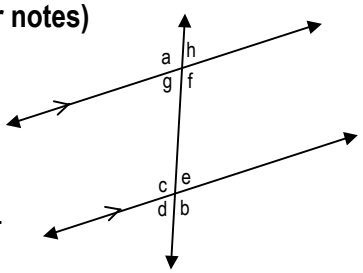
☐ **DO NOW** On the back of this packet

☐ (1) transparencies, dry erase markers, erasers N11

Angles: Finding measures of unknown angles by using relationships (use your notes)

alternate interior alternate exterior

same side interior corresponding



☐ In the diagram at right, m∠a = 125°. Complete each statement below:

NOTICE: Reasons can ONLY include relationships to angles that are already known.

(a) ☐ m∠f = 125° because ∠f is _____ to ∠a.

(b) ☐ m∠b = 125° because ∠b is _____ to ∠a and _____ to ∠f.

(c) ☐ m∠c = 125° because ∠c is _____ to ∠a and _____ to ∠f and _____ to ∠b.

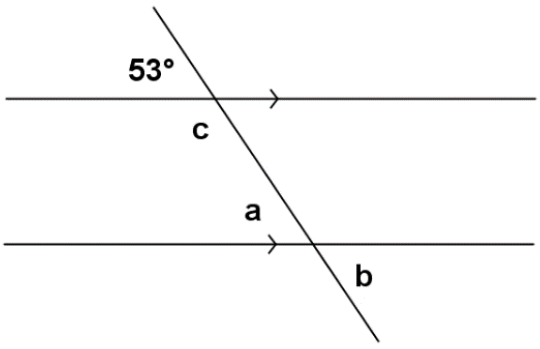
(d) ☐ m∠g = 55° because ∠g is _____ with ∠a and. _____ to ∠c.

(e) ☐ m∠h = 55° because ∠h is _____ to ∠g.

☐ (2) transparencies, dry erase markers, erasers N11

Angles: Finding measures of unknown angles by using relationships (use your notes)

☐ Find the measure of each angle and name a relationship you used to find the measure. Mention parallel lines and write and solve an equation when needed. REMEMBER: Reasons can ONLY include relationships to angles that are already known. Use the space at the bottom to solve any equations you write. Add the letter x to the diagram to help you find d and y to help you find f.

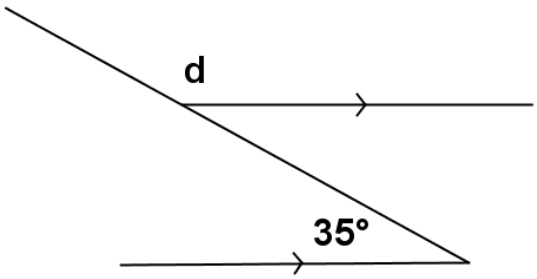


m∠a = _____ because it is _____ with _____and _____

m∠b = _____ because it is _____ with _____and _____

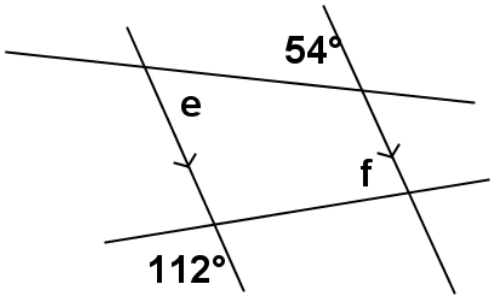
m∠c = _____ because it is _____ with _____and _____

☐ (2) cont **Angles: Finding measures of unknown angles by using relationships (use your notes)**



m∠x = _____ because it is _____ with _____ and _____

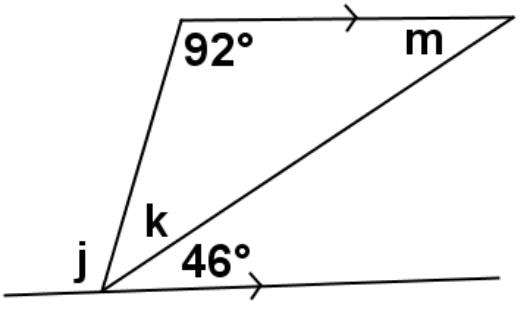
m∠d = _____ because it is _____ with _____



m∠e = _____ because it is _____ with _____ and _____

m∠f = _____ because it is _____ with _____and _____

m∠y = _____ because it is _____ with _____



m∠j = _____ because it is _____ with _____ and _____

m∠k = _____ because it is _____ with _____and _____

m∠m = _____ because it is _____ with _____and _____

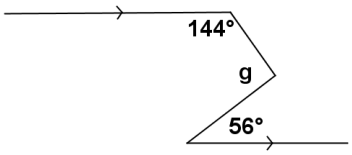
☐ (3)

transparencies, dry erase markers, erasers

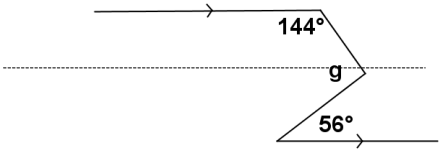
Angles: Using Auxiliary lines to find unknown angle measures

☐ **Auxiliary** lines are lines that you add to a diagram. To find the measure of angle g in the diagram below, it is possible to draw a line parallel to the two lines that are parallel and divide g into two smaller angles. We can call those smaller angles g_1 and g_2.

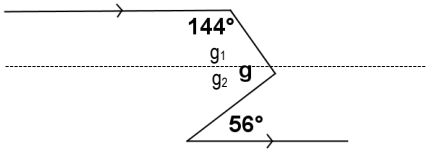
Original problem labeled



With Auxiliary Line



With auxiliary line and g_1 and g_2



☐ (a) From the third diagram, we can write the equation g = _____ + _____ because _____

_____

☐ (b) ☐ g_1 = _____ because g_1 and _____are_____ angles and the lines are _____.

☐ (c) ☐ g_2 = _____ because g_2 and _____are_____ angles and the lines are _____.

☐ (d) ☐ Since g = _____ + _____ , g_1 = _____, and g_2 = _____ we can substitute values into the equation to find g.

☐ (e) Write the equation and simplify to find the value of g. _____

_____

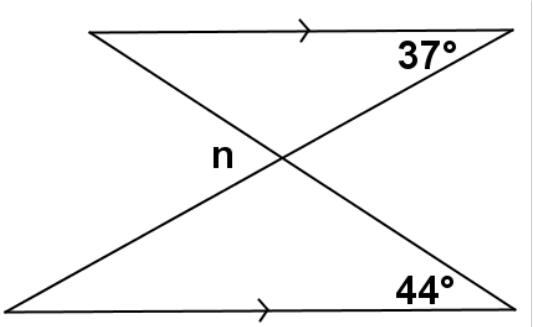
☐ (4)

transparencies, dry erase markers, erasers

Angles: Using relationships and auxiliary lines to solve for unknown angle measures

☐ Add auxiliary lines to find the measures of the indicated angles. Use the steps from #3 to help you. Look back at the notes page N11 to find angle relationships that might help you. Suggestions you MAY want to use are listed for you. You MAY not need all of the lines provided. You must write a reason for every measure you find.

☐ (a) SUGGESTIONS: corresponding, alternate interior, vertical



_____ because _____

_____ because _____

_____ because _____

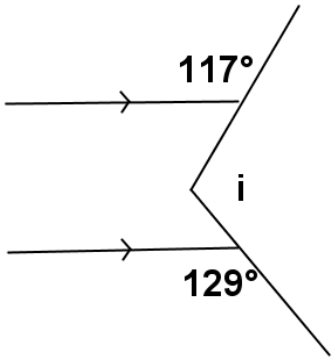
_____ because _____

_____ because _____

_____ because _____

_____ because _____

☐ (b) SUGGESTIONS: corresponding, angles around a point, supplementary



_____ because _____

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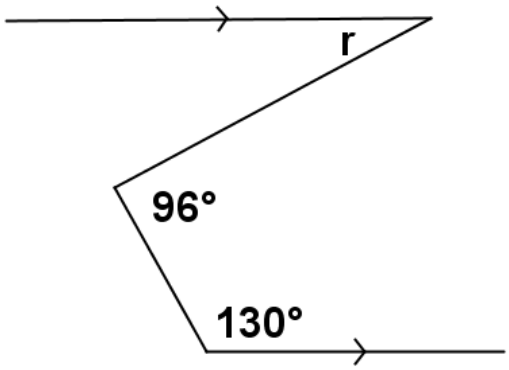
☐ (4) cont. transparencies, dry erase markers, erasers

Angles: Using relationships and auxiliary lines to solve for unknown angle measures

☐ Add auxiliary lines to find the measures of l, n, and r. Use the steps from #4 to help you. Look back at the notes page N11 to find angle relationships that might help you. Suggestions you MAY want to use are listed for you. You MAY not need all of the lines provided. You must write a reason for every measure you find.

☐ (c) SUGGESTIONS: alternate interior, same side interior, supplementary



_____because_____

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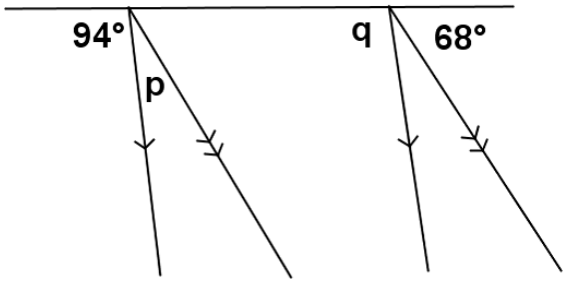
☐ (d)



_____because_____

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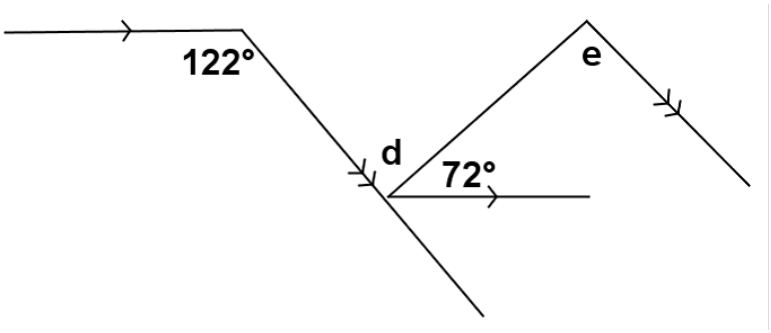
☐ (5) **Exit Ticket**

ON THE LAST PAGE

☐ (6) **Homework**

pen or pencil

☐ (e)



_____because_____

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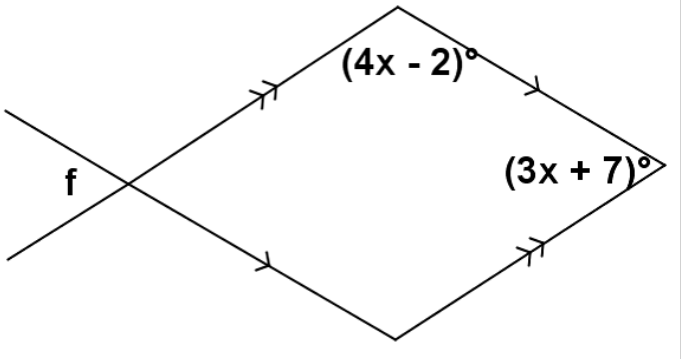
☐ (f)



_____because_____

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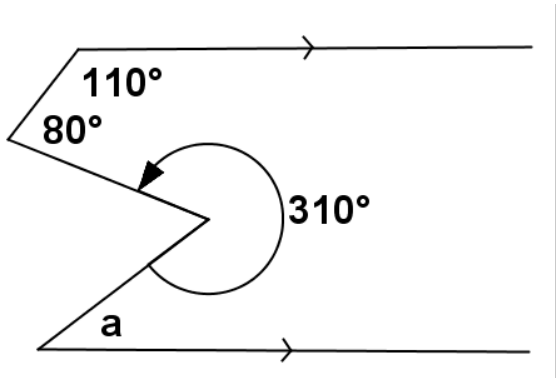
☐ (6) pen or pencil **Homework**

☐ (e)



_____because_____
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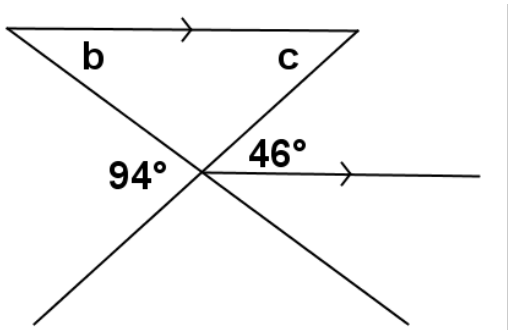
☐ (f)



_____because_____
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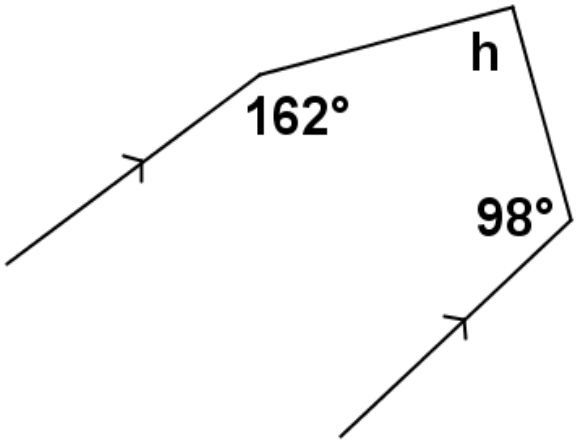
Exit Ticket **Name**_____ **Date** _____ _____ **Per**_ _____ **3.3R**

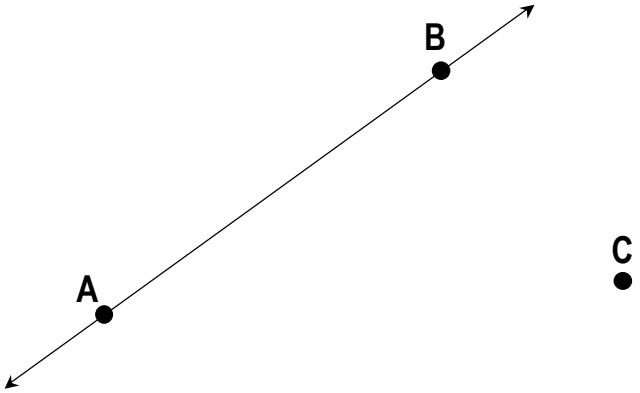
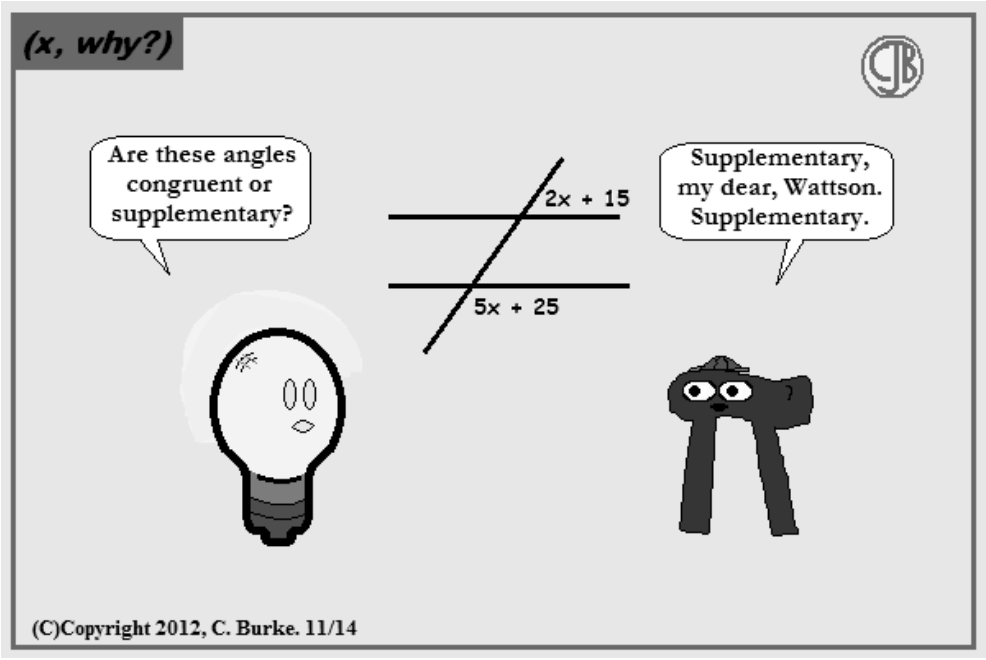
(1) The LO (Learning Outcomes) are written below your name on the front of this packet. Demonstrate your achievement of these outcomes by doing the following:

Find the measure of angle *h* and provide a reason for every angle measure you find.



DO NOW **Name**_____ **Date** _____ **Per**_____ **3.3R**

(1) Draw a diagram like the one at right and construct a line parallel to line AB by translating line AB along vector BC. (Refer to lesson 2.10 #2.)



(2) Describe why the cartoon below is supposed to make people smile. REALLY think about it. Use 3.2R