

(DN) Read number 1 for this lesson and define the word “theorem” on your do now page.

Name _____ Per _____

LO: I can prove the theorems we have been using and can use the converse of theorems to prove lines are parallel.

(1) **Angles: Writing Proofs**
N11, N12

A **theorem** is a statement that can be proven. We have used the **theorems** below already. Describe what each one tells us. (You might want to refer to the notes pages N11 and N12)

triangle sum theorem _____

exterior angle theorem _____

vertical angles theorem _____

alternate interior angles theorem _____

alternate exterior angles theorem _____

same side interior angles theorem _____

When proving these theorems, we can use facts that we know and other theorems we have proven. The following can be used as facts for proving. Describe how each one can be useful.

linear pair of angles _____

adjacent angles on a line _____

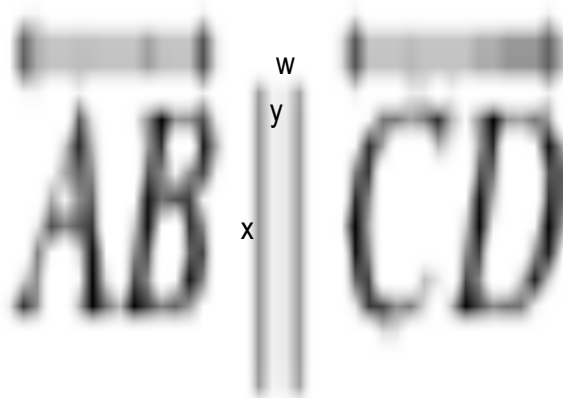
adjacent angles around a point _____

corresponding angles _____

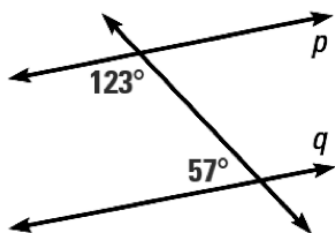
(2) **Angles: Writing Proofs**

Sometimes it is good to think about where your proof is starting and where it will end. You must start at the top of the proof with the given and work your way to what you are trying to prove, HOWEVER, you may want to start at the end and think backwards about what facts can lead to the conclusion you are proving.

PROVE: If lines are parallel ($\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$), then same side interior angles are supplementary (sum = 180°).

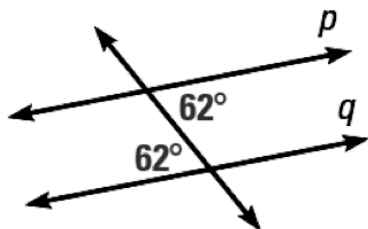


I know that . . .	because . . .

(6) **Angles: Proving that lines are parallel**
 Is line p parallel to line q ?


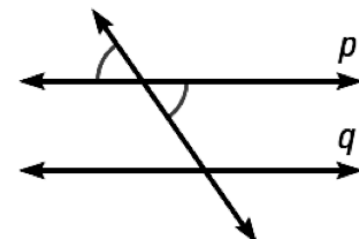
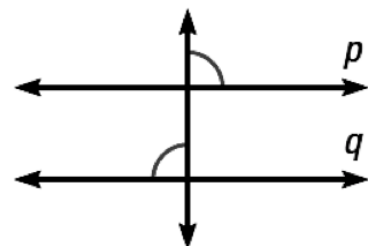
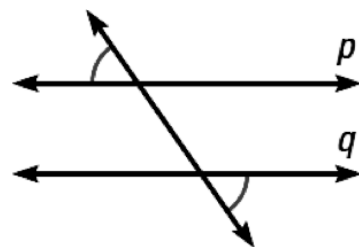
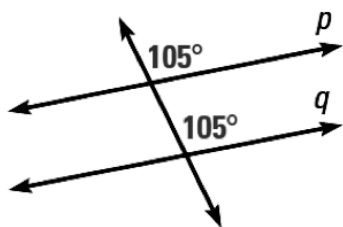
I can/cannot prove that _____

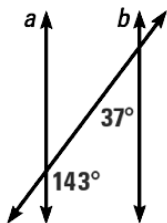
because _____



I can/cannot prove that _____

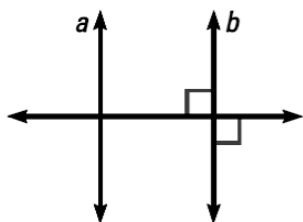
because _____



(6) **Angles: Proving that lines are parallel**
 Is line a parallel to line b ?


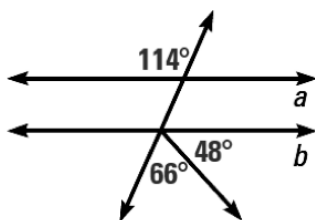
I can/cannot prove that _____

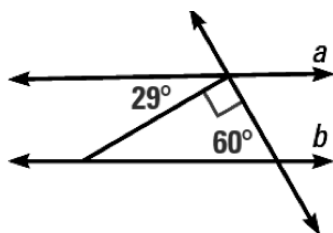
because _____

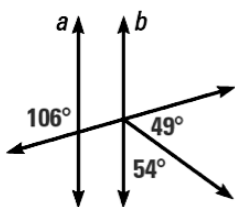


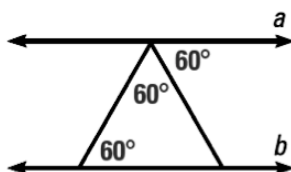
I can/cannot prove that _____

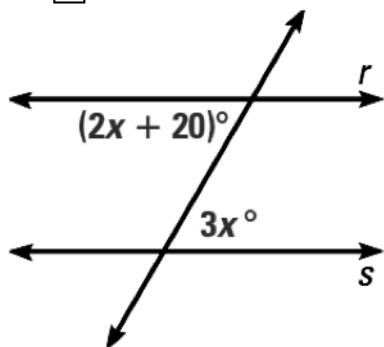
because _____



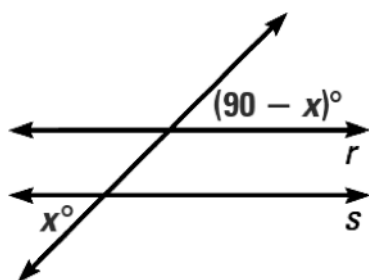




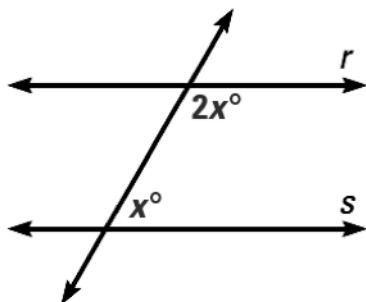


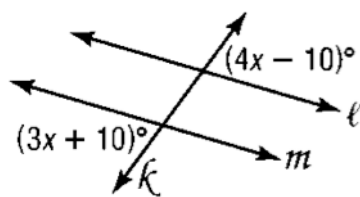
(6) **Angles: Proving that lines are parallel**
 What value of x will result in parallel lines?


I know that _____ will be parallel to _____ when x is _____ because _____



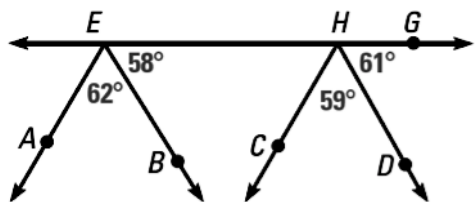
I know that _____ will be parallel to _____ when x is _____ because _____



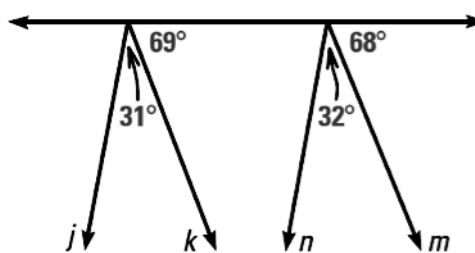


(6) **Angles: Proving that lines are parallel**

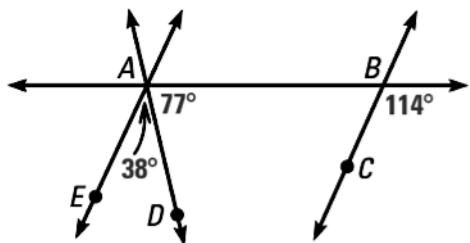
Prove that lines are parallel or explain why it is not possible.

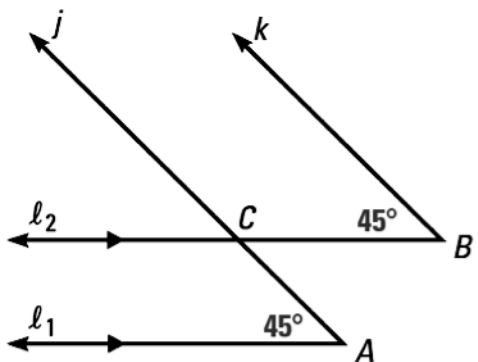


I know that _____ because _____



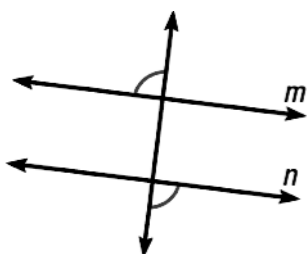
I know that _____ because _____





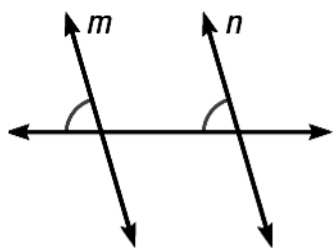
(8) **Angles: Proving that lines are parallel**

Is line m parallel to line n ?



I can/cannot prove that _____

because _____



I can/cannot prove that _____

because _____

