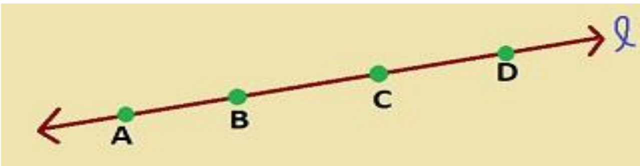
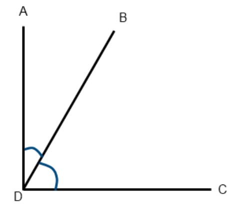
 Name ____

1. Points A, B, C, and D lie on $\overline{AD}$. If AB = 3 meters, BC = 5 meters, and CD = 4 meters, what is AD? Show your methods below.



2. If $m\angle ADB = 20^{\circ}$ and $m\angle ADC = 85^{\circ}$, what is $m\angle BDC$? Show your methods.



3. If C is between A and B, then the *Segment Addition Postulate* states that:

_____________ + ______________ = _____________

4. If C is in the interior of between ∠ADB, then the *Angle Addition Postulate* states that:

_____________ + ______________ = _____________

5. A right angle has ___________ degrees.

6. A straight angle has ___________ degrees.

7. Use two of the words below to make each statement true.

A _________________________ is a statement that is believed to be true and accepted without proof.

A _________________________ is a statement that has been proven to be true for all cases.

postulate ***theorem*** ***axiom*** ***converse***

8. What are ***linear pair*** angles?

9. What is the ***linear pair theorem***?

10. $\angle ADB$ and $\angle BDC$ are linear pairs. If $m\angle ADB$ = 80°, then find $m\angle BDC$. Explain how you got your answer.

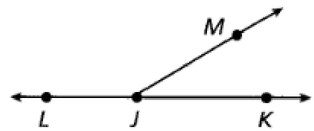
11. What is the ***common segment theorem***?

12.

If two angles form a linear pair, then they are supplementary.

Given: $\angle MJK$ and $\angle MJL$ are a linear pair of angles.

Prove: $\angle MJK$ and $\angle MJL$ are supplementary.



Complete the proof by writing the missing reasons. Choose from the following reasons.

Angle Addition Postulate | Definition of opposite rays | Substitution Property of Equality | Given

Statements	Reasons
1. $\angle MJK$ and $\angle MJL$ are a linear pair.	1.
2. $\overrightarrow{JL}$ and $\overrightarrow{JK}$ are opposite rays.	2. Definition of linear pair
3. $\overrightarrow{JL}$ and $\overrightarrow{JK}$ form a straight line.	3.
4. $m\angle LJK = 180°$	4. Definition of straight angle
5. $m\angle MJK + m\angle MJL = m\angle LJK$	5.
6. $m\angle MJK + m\angle MJL = 180°$	6.
7. $\angle MJK$ and $\angle MJL$ are supplementary.	7. Definition of supplementary angles

13.

If A, B, C, and D are collinear, as shown in the figure, with $AC = BD$, then $AB = CD$.

Given: $AC = BD$

Prove: $AB = CD$

Statements	Reasons
1. $AC = BD$	1.
2. $AC = AB + BC$; $BD = BC + CD$	2.
3.	3. Substitution Property of Equality
4. $AB = CD$	4.