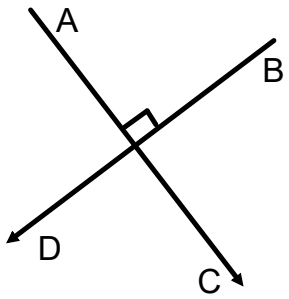
Perpendicular Lines

Lines segments, or rays that form right angles are perpendicular.

Symbol ⊥

$AC \perp BD$

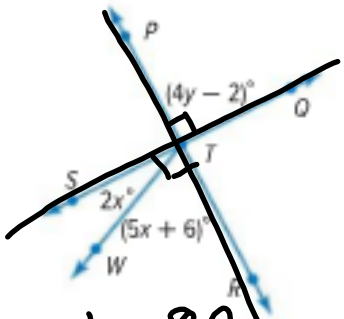


Example: Find x and y so that PR and SQ are perpendicular.

$4y - 2 = 90$

$4y = 92$

$y = 23$



$7x + 6 = 90$

$7x = 84$

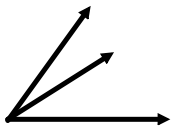
$x = 12$

Example:

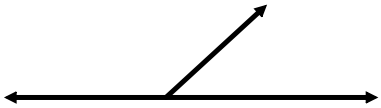
suppose m<D =3x-12. Find x so that <D is a right angle.

When you look at a diagram you can conclude the following items are true:

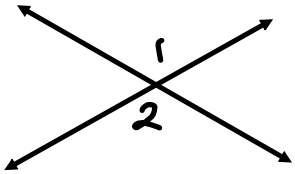
1. angles are adjacent



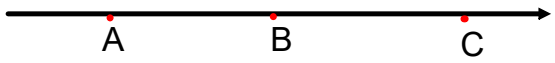
2. adjacent supplementary angles



3. vertical angles

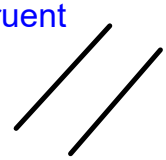


4. Points are collinear.

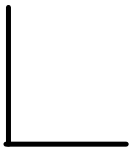


When you look at a diagram you ***cannot*** conclude that:

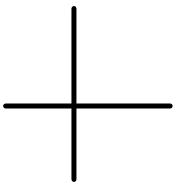
1 angles or segments are congruent

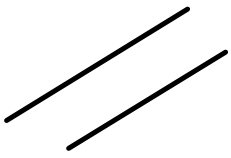


2 an angle is a right angle

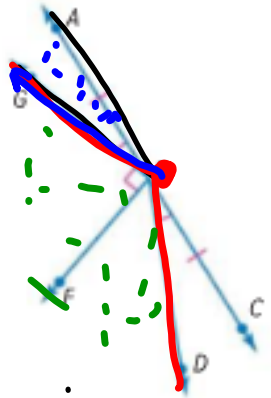


3. lines are parallel or perpendicular





Determine whether each statement can be assumed from the figure.



a. <DBC and <ABG are complementary. NO ≅ NOT COMP

b. <ABD and <CBD are a linear pair. yes

c. BF is perpendicular to BG yes right <

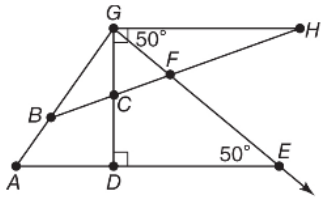
d. <ABF and <FBC are supplementary. yes linear pair

e. <ABG and <GBD are adjacent angles. yes

NAME _____ DATE_____ PERIOD _____

1-5 Practice
Angle Relationships

Name an angle or angle pair that satisfies each condition.



1. Name two obtuse vertical angles.

2. Name a linear pair with vertex B.

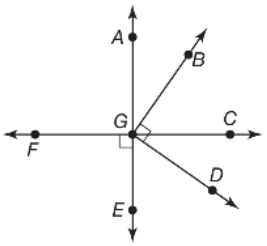
3. Name an angle not adjacent to, but complementary to $\angle FGC$.

4. Name an angle adjacent and supplementary to $\angle DCB$.

5. ALGEBRA Two angles are complementary. The measure of one angle is 21 more than twice the measure of the other angle. Find the measures of the angles.

6. ALGEBRA If a supplement of an angle has a measure 78 less than the measure of the angle, what are the measures of the angles?

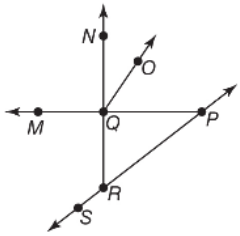
ALGEBRA For Exercises 7-8, use the figure at the right.



7. If $m\angle FGE = 5x + 10$, find the value of x so that $\overleftrightarrow{FC} \perp \overleftrightarrow{AE}$.

8. If $m\angle BGC = 16x - 4$ and $m\angle CGD = 2x + 13$, find the value of x so that $\angle BGD$ is a right angle

Determine whether each statement can be assumed from the figure. Explain.



9. $\angle NQO$ and $\angle OQP$ are complementary.

10. $\angle SRQ$ and $\angle QRP$ is a linear pair.

11. $\angle MQN$ and $\angle MQR$ are vertical angles.

12. STREET MAPS Darren sketched a map of the cross streets nearest to his home for his friend Miguel. Describe two different angle relationships between the streets.