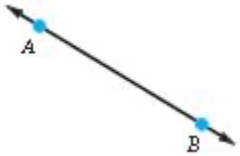
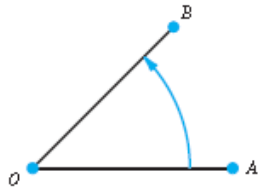
Lesson 06: Geometry and Measures

Geometry: Lines and Angles

Vocabulary

<table>
<tr>
<td>Point:
A location usually represented by a dot and named by a capital letter.
 
</td>
<td>Straight Line:
A collection of points extending forever in opposite directions.
 

Usually identified by two of the points contained on the line and written: $\overleftrightarrow{AB}$</td>
<td>Line Segment:
A portion of a line identified by a two end points written: $\overline{AB}$
 
</td>
<td>Angle:
A geometric figure formed when two line segments share a common endpoint.
 

Vertex: the common endpoint. O for this angle</td>
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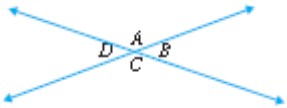
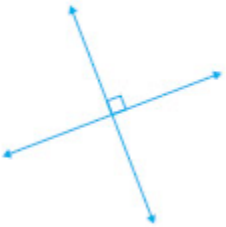
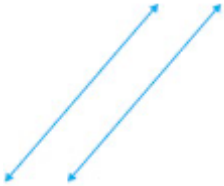
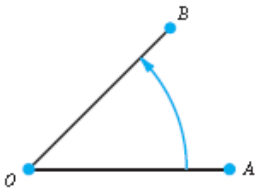
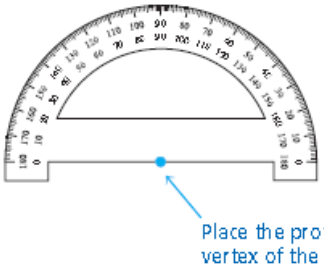
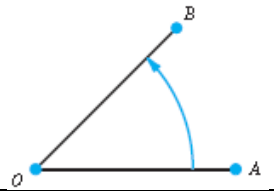
<tr>
<td>Intersecting lines:
Two lines that cross one another at a given point.
 
</td>
<td>Perpendicular lines: Two lines that intersect forming four equal angles.
  </td>
<td>Parallel lines: Two lines in the same plane that never intersect.
  </td>
<td>Naming an angle:
 

Name the angle with the three points $\angle AOB$ to avoid confusion or by the vertex $\angle O$ if there is no confusion.

The way to talk about the measure of A is $m\angle A$.</td>
</tr>
<tr>
<td>Degree:
Unit of measurement used for measuring angles based on a full circle being 360°.</td>
<td colspan="2">Protractor:
Tool used to measure the degree of an angle.
 
</td>
<td>$m\angle AOB$:
A way to identify the measurement of angle $\angle AOB$
 
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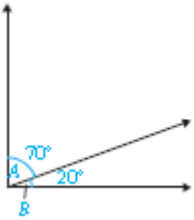
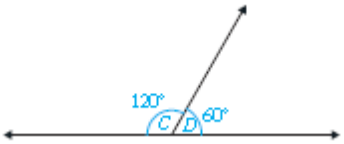
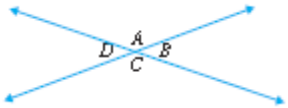
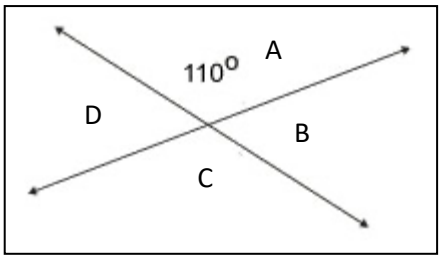
Acute angle: An angel whose measure is greater than $0°$ and less than $90°$ 	**Right** angle: An angle whose measure is $90°$ 	**Obtuse** angle: An angle whose measure is greater than $90°$ and less than $180°$ 	**Straight** angle: An angle whose measure is $180°$ 
Complementary angles: Two angles that form a right angle; the sum of their measures add to $90°$  If one angle is 70° then the complement of that angle is 20°.	**Supplementary** angles: Two angles that form a straight line; the sum of their measures add to $180°$  If one angle is 60° then the supplement of that angle is 120°.	**Vertical** angles: A pair of opposite angles formed by two intersecting lines.  Vertical angles are equal. In the picture above, the $m\angle A = m\angle C$ and the $m\angle D = m\angle B$.	**Triangle**: An enclosed figure composed of three sides.  The **sum** of the three angles within the triangle is $180°$.



Using these definitions of angles, if one knows the measurement of one angle formed by intersecting lines, then the measurements of the other three can easily be determined.

If $m\angle A = 110°$, then $m\angle C = 110°$ because they are vertical angles. The $m\angle B = 70°$ because $\angle A$ and $\angle B$ are supplementary angles. Since $\angle D$ and $\angle B$ are vertical angles, then $m\angle D = 70°$.

TRY:

If $m\angle G = 50°$, find the complement and the supplement of $\angle G$.

Find the measure of the missing angle in: