

Geometry Journal: Angles and Angle Pairs

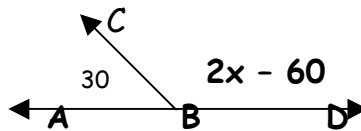
Post, Thm, or Defn	Example/Drawing	Conclusion
<p>1. Angle Measures:</p> <p>Right angle = 90° $\angle ABC$</p> <p>Acute angle $< 90^\circ$ $\angle DCE$ $180^\circ >$</p> <p>Obtuse angle $> 90^\circ$ $\angle ACE$</p> <p>Straight angle = 180° $\angle BCD$</p>		<p>Name:</p> <p>another right angle: $\angle ACB$</p> <p>another obtuse angle: $\angle FCD$</p> <p>another acute angle: $\angle FCB$</p> <p>another straight angle: $\angle FCE$</p>
<p>2. Angle Addition Postulate:</p> <p>An Angle is equal to the sum of the degree measures of its parts.</p>	<p>Given: P is in the interior of $\angle BAC$: $m\angle BAP = 2x - 4$ $m\angle PAC = 3x + 5$ $m\angle BAC = 111^\circ$</p> <p>$x = \underline{\hspace{1cm}}$ $\angle PAC = \underline{\hspace{1cm}}^\circ$</p>	<p>$\angle BAC = \angle BAP + \angle PAC$ $111^\circ = 2x - 4 + 3x + 5$ $111^\circ = 5x + 1$ $110^\circ = 5x$ $22^\circ = x$ $\angle PAC = 3x + 5 = 3(22) + 5$ $= 71^\circ$</p>
<p>3. Vertical Angles are Congruent. Vert. \angle's \cong</p>	<p>Given: $\angle BAC$ and $\angle PAD$ are vertical angles.</p> <p>$m\angle BAC = 2x - 50$ $m\angle PAD = 3x - 80$</p> <p>$x = \underline{\hspace{1cm}}$ $\angle PAD = \underline{\hspace{1cm}}$</p>	<p>$\angle BAC = \angle PAD$ $2x - 50 = 3x - 80$ $30 = x$ $\angle PAD = 3x - 80$ $= 3(30) - 80$ $= 90 - 80$ $= 10$</p>
<p>4. Supplementary Angles</p> <p>Sum of the angles = 180°</p>	<p>Given: $\angle ABC$ and $\angle XYZ$ are supplementary angles.</p> <p>$m\angle ABC = 2x + 40$ $m\angle XYZ = 3x + 20$ Find $x = \underline{\hspace{1cm}}$</p> <p>$m\angle ABC$ $m\angle XYZ$</p>	<p>$m\angle ABC + m\angle XYZ = 180$ $2x + 40 + 3x + 20 = 180$ $5x + 60 = 180$ $5x = 120$ $x = 24$</p> <p>$m\angle ABC = 2x + 40$ $m\angle XYZ$ $= 2(24) + 40$ $= 180 - 88$ $= 48 + 4$ $= 92$ $= 88$</p>

5. If two angles form a linear pair, then their sum is 180° .

Linear Pair

Given: $\angle ABC$ and $\angle CBD$ form a linear pair

$m\angle ABC = 30^\circ$ $x = \underline{\hspace{2cm}}$
 $m\angle CBD = 2x - 60$ $m\angle CBD =$



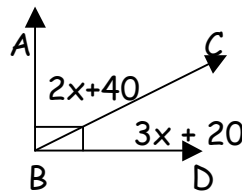
$$\begin{aligned} m\angle ABC + m\angle CBD &= 180 \\ 30 + 2x - 60 &= 180 \\ 2x - 30 &= 180 \\ 2x &= 210 \\ x &= 105 \\ m\angle CBD &= 2x - 60 \\ &= 2(105) - 60 \\ &= 210 - 60 = 150^\circ \end{aligned}$$

6. Complimentary angles

Sum of angles = 90°

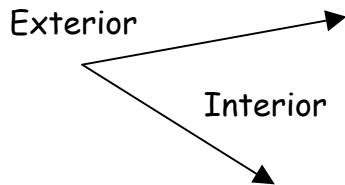
Given: $\angle ABC$ and $\angle CBD$ are complimentary angles

$m\angle ABC = 2x + 40$ $x = \underline{\hspace{2cm}}$
 $m\angle CBD = 3x + 20$ $m\angle CBD = \underline{\hspace{2cm}}$
 $m\angle ABC = \underline{\hspace{2cm}}$

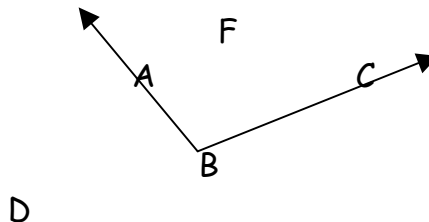


$$\begin{aligned} m\angle ABC + m\angle CBD &= 90^\circ \\ 2x + 40 + 3x + 20 &= 90^\circ \\ 5x + 60 &= 90^\circ \\ 5x &= 30 \\ x &= 6 \\ m\angle CBD &= 3x + 20 \\ &= 3(6) + 20 \\ &= 18 + 20 = 38 \\ m\angle ABC &= 90 - 38 = 52^\circ \end{aligned}$$

7. Space and the Angle



Given: $m\angle ABC$ With points D and F not on the angle describe which is interior and which is exterior.



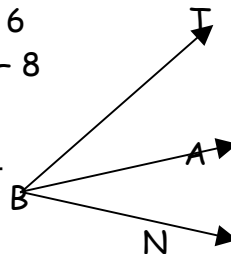
F is interior.
 D is exterior.
 A, B, C are all on the angle

8. Definition of Angle Bisector

A line, ray, or segment which divides an angle into 2 congruent parts.

Given: ray BA bisects $\angle TBN$

$\angle TBA = 4x + 6$
 $\angle TBN = 12x - 8$
 $x = \underline{\hspace{2cm}}$
 $m\angle ABN = \underline{\hspace{2cm}}$



$$\begin{aligned} 2(m\angle TBA) &= \angle TBN \\ 2(4x + 6) &= 12x - 8 \\ 8x + 12 &= 12x - 8 \\ 20 &= 4x \\ 5 &= x \\ m\angle ABN &= \angle TBA = 4x + 6 \\ &= 4(5) + 6 \\ &= 26^\circ \end{aligned}$$

Name _____

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