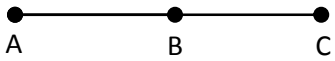
Angle Proof Worksheet #1

1. Given: B is the midpoint of $\overline{AC}$



Prove: AB = BC

Steps	Reasons
1. B is the midpoint of $\overline{AC}$	Given
2. AB ≅ BC	
3. AB = BC	Definition of Congruent

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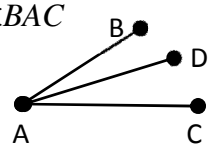
2. Given: $\overline{AD}$ is the bisector of $\measuredangle BAC$



Prove: $m\measuredangle BAD = m\measuredangle CAD$

Steps	Reasons
1. $\overline{AD}$ is the bisector of $\measuredangle BAC$	Given
2. $\measuredangle BAD \cong \measuredangle CAD$	
3. $m\measuredangle BAD = m\measuredangle CAD$	Definition of Congruent

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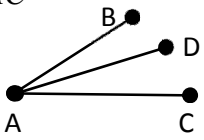
3. Given: D is in the interior of $\measuredangle BAC$



Prove: $m\measuredangle BAD + m\measuredangle DAC = m\measuredangle BAC$

Steps	Reasons
1. D is in the interior of $\measuredangle BAC$	Given
2. $m\measuredangle BAD + m\measuredangle DAC = m\measuredangle BAC$	

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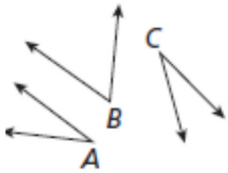
4. Given: $m\measuredangle A + m\measuredangle B = 90°$; $\measuredangle A \cong \measuredangle C$



Prove: $m\measuredangle C + m\measuredangle B = 90°$

Steps	Reasons
1. $m\measuredangle A + m\measuredangle B = 90°$	Given
2. $\measuredangle A \cong \measuredangle C$	Given
3. $m\measuredangle A = m\measuredangle C$	
4.	Substitution steps 1 and 3

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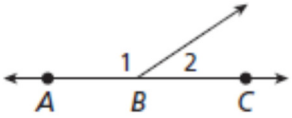
5. Given: <1 and <2 form a straight angle



Prove: $m\measuredangle 1 + m\measuredangle 2 = 180°$

Steps	Reasons
1. <1 and <2 form a straight angle	Given
2. $m\measuredangle ABC = 180°$	Definition of Straight Angle
3.	Angle Addition Postulate
4.	Substitution steps 2 and 3

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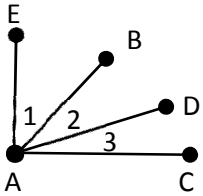
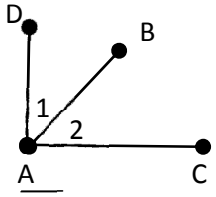
6. Given: $m\measuredangle EAC = 90°$



Steps	Reasons
1. $m\measuredangle EAC = 90°$	Given
2.	Angle Addition Postulate
3.	Substitution steps 1 and 2

Prove: $m\angle 1 + m\angle 2 + m\angle 3 = 90°$

7. Given: $m\angle 1 = 45° \text{ and } m\angle 2 = 45°$



Prove: $\overline{AB}$ is bisector of $\angle DAC$

Steps	Reasons
1. $m\angle 1 = 45° \text{ and } m\angle 2 = 45°$	Given
2. $m\angle 1 = m\angle 2$	Substitution Prop. of =
3. $\angle 1 \cong \angle 2$	
4.	Definition of angle bisector

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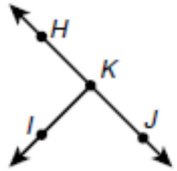
8. Given: $\angle HKJ$ is a straight angle

$\overrightarrow{KI}$ bisects $\angle HKJ$



Prove: $\angle IKJ$ is a right angle

Steps	Reasons
1. $\angle HKJ$ is a straight angle	Given
2.	Definition straight angle
3. $\overrightarrow{KI}$ bisects $\angle HKJ$	Given
4. $\angle IKJ \cong \angle IKH$	
5. $m\angle IKJ = m\angle IKH$	Defintion of congruent
6.	Angle Addition Postulate
7. $m\angle IKJ + m\angle IKJ = 180°$	Substitution steps 2, 5, and 6
8. $2(m\angle IKJ) = 180°$	Simplify
9.	Division Prop of =
10. $\angle IKJ$ is a right angle	

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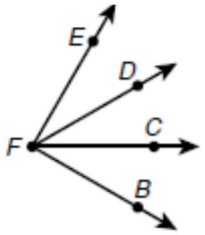
9. Given: $\overrightarrow{FD}$ bisects $\angle EFC$

$\overrightarrow{FC}$ bisects $\angle DFB$



Prove: $\angle EFD \cong \angle CFB$

Steps	Reasons
1. $\overrightarrow{FD}$ bisects $\angle EFC$; $\overrightarrow{FC}$ bisects $\angle DFB$	Given
2. $\angle EFD \cong \angle DFC$, $\angle DFC \cong \angle CFB$	
3.	Definition of Congruent
4. $m\angle EFD = m\angle CFB$	Transitive Prop of =
5. $\angle EFD \cong \angle CFB$	

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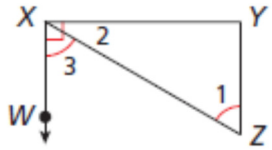
10. Given: <WXY is a right angle

$\angle 1 \cong \angle 3$



Prove: $m\angle 2 + m\angle 1 = 90°$

Steps	Reasons
1. <WXY is a right angle	Given
2. $m\angle WXY = 90°$	
3. $m\angle 2 + m\angle 3 = m\angle WXY$	
4. $m\angle 2 + m\angle 3 = 90°$	Substitution steps 2 & 3
5. $\angle 1 \cong \angle 3$	Given
6. $m\angle 1 = m\angle 3$	
7. $m\angle 2 + m\angle 1 = 90°$	Substitution steps 4 & 6