

# Warm-up

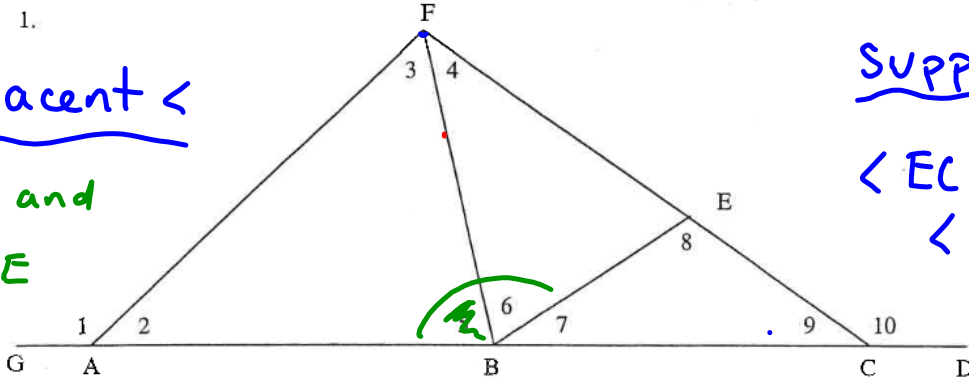
Name: \_\_\_\_\_

Geometry R

## Unit 2 - Intro to Proofs Test on Thursday

1.

adjacent  $\angle$   
 $\angle EBC$  and  
 $\angle FBE$



SUPP  
 $\angle ECD$   
 $\angle ECB$

Part I: Name the following angles using three letters.

$\angle 1$   $\angle CAF$

$\angle 5$   $\angle FBA$

$\angle 8$   $\angle BEC$

$\angle 3$   $\angle AFB$

$\angle 6$   $\angle EBF$

$\angle 9$   $\angle ECB$

Part II:

$\angle ABC$        $\angle FEC$

a. Name a pair of supplementary angles. \_\_\_\_\_ and \_\_\_\_\_

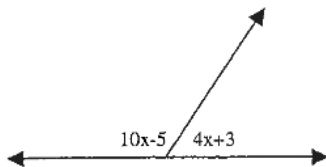
b. Name two straight angles. \_\_\_\_\_ and \_\_\_\_\_

Part III: Angle Addition and Subtraction

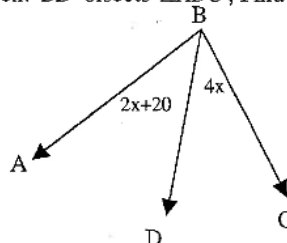
a.  $\angle FBC = \angle FBE + \angle EBC$

b.  $\angle ABF + \angle FBE = \angle ABE$

2. Solve for x.



3. Given:  $\overline{BD}$  bisects  $\angle ABC$ , Find  $m\angle ABC$



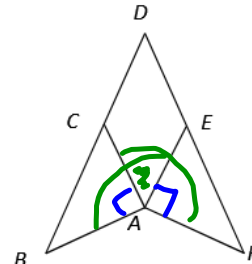
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Geometry Notes Intro to Geo Proofs – 9/10: Proofs Practice

Ex: Given:  $\overline{AB} \perp \overline{AC}, \overline{AE} \perp \overline{AF}$

Prove:  $\angle BAE \cong \angle FAC$



Statements

Reasons

1)  $\overline{AB} \perp \overline{AC}, \overline{AE} \perp \overline{AF}$

1) given

2)  $\angle BAC$  and  $\angle EAF$   
are right  $\angle$ s

2)  $\perp$  lines meet to form right  $\angle$ s

3)  $\angle BAC \cong \angle EAF$

3) All right  $\angle$ s are  $\cong$

4)  $\angle CAE \cong \angle CAE$

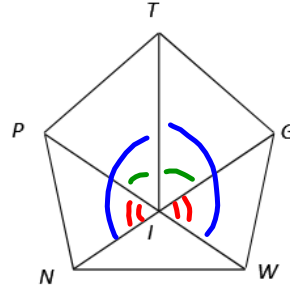
4) Reflexive

5)  $\angle BAE \cong \angle FAC$

5) Addition

Ex: Given:  $\overline{PIW}$ ,  $\overline{GIN}$ ,  $\overline{IT}$  bisects  $\angle PIG$

Prove:  $\angle NIT \cong \angle WIT$



Statements	Reasons
1) $\overline{IT}$ bisects $\angle PIG$	1) given
2) $\angle PIT \cong \angle GIT$	2) A bisector cuts an $\angle$ into 2 $\cong$ angles
3) $\angle PIN \cong \angle GIW$	3) All vertical $\angle$ s are $\cong$
4) $\angle NIT \cong \angle WIT$	4) Addition

Name: \_\_\_\_\_

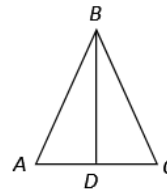
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**Geometry HW: Intro Geo Proofs – 9 Proof Practice**

Determine if each conclusion and reason is True or False. If false, change the conclusion and/or the reason (not the given).

1. Given:  $\overline{BD}$  bisects  $\angle ABC$

Conclusion:  $\angle BAD \cong \angle BCD$  because a bisector divides an angle into two congruent parts



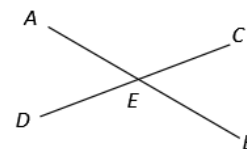
2. Given:  $m\angle 1 + m\angle 2 = 90$  (No diagram for this problem.)

$$m\angle 3 + m\angle 4 = 90$$

Conclusion:  $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 4$  by the Addition Post.

3. Given:  $\overline{AB}$  intersects  $\overline{CD}$  at E

Conclusion:  $\overline{CE} \cong \overline{ED}$  because a bisector divides a segment into 2  $\cong$  parts

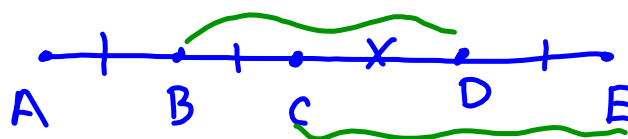


Write a complete geometry proof for each of #4 - 6:

4. Given:  $\overline{ABCDE}$ , B is the midpoint of  $\overline{AC}$ ,  $\overline{AB} \cong \overline{DE}$

(Draw your own diagram.)

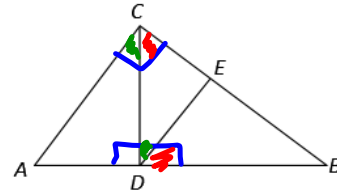
Prove:  $\overline{BD} \cong \overline{CE}$



<p>S</p> <p>1) B is the <u>midpt</u> of <math>\overline{AC}</math>, <math>\overline{AB} \cong \overline{BC}</math></p> <p>2) <math>\overline{AB} \cong \overline{BC}</math></p> <p>3) <math>\overline{BC} \cong \overline{DE}</math></p> <p>4) <math>\overline{CD} \cong \overline{CD}</math></p> <p>5) <math>\overline{BD} \cong \overline{CE}</math></p>	<p>R</p> <p>1) given</p> <p>2) A <u>midpt</u> cuts a segment into 2 <math>\cong</math> segments</p> <p>3) Transitive</p> <p>4) Reflexive</p> <p>5) Addition</p>
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5. Given:  $\triangle ABC$  with right  $\angle ACB$ ,  $\overline{CD} \perp \overline{AB}$ ,  $\angle ACD \cong \angle EDC$ .

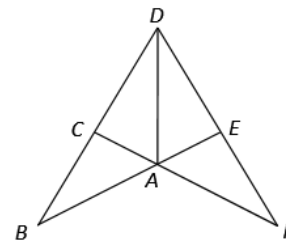
Prove:  $\angle ECD \cong \angle EDB$



<p>1) <math>\angle ADC</math> and <math>\angle BDC</math> are right <math>\angle</math>s</p> <p>2) <math>\angle ADC \cong \angle BDC \cong \angle ACB</math></p> <p>3) <math>\angle ECD \cong \angle EDB</math></p>	<p>1) given</p> <p>2) <math>\perp</math> lines meet to form right <math>\angle</math>s</p> <p>3) All right <math>\angle</math>s are <math>\cong</math></p> <p>4) Subtraction</p>
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6. Given:  $\angle BAD \cong \angle FAD$ ,  $\overline{BAE}$ ,  $\overline{FAC}$

Prove:  $\overline{DA}$  bisects  $\angle CAE$

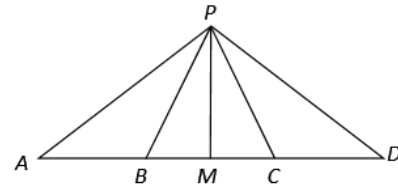


Geometry HW: Intro Geo Proofs - 10

Write complete geometry proofs for each of the following.

1. Given:  $\overline{ABMCD}$ ,  $M$  is the midpoint of  $\overline{BC}$ ,  $\overline{PM}$  bisects  $\overline{AD}$

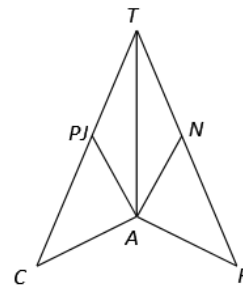
**Prove:**  $\overline{AB} \cong \overline{CD}$



2. Given:  $\overline{AP} \perp \overline{CA}$ ,  $\overline{AN} \perp \overline{RA}$

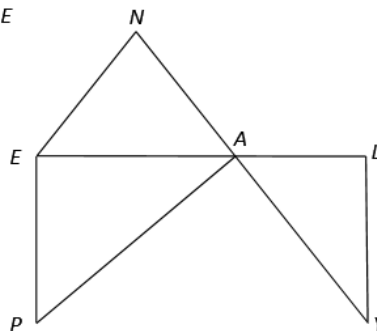
$\overline{AT}$  bisects  $\angle PAN$ .

**Prove:**  $\angle CAT \cong \angle RAT$



3. Given:  $\overline{EAL}$ ,  $\overline{NAY}$ ,  $\angle PEA$  is a right angle,  $\overline{PA} \perp \overline{NY}$ ,  $\angle NEA \cong \angle NAE$

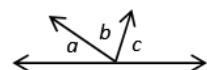
**Prove:**  $\angle PEN \cong \angle PAL$



4. Two vertical angles are complementary. What is the measure of each?

5. Given:  $\overline{MATH}$ , A is the midpoint of  $\overline{MT}$ ,  $MH = 21$  and  $AH = 15$ . Find the value of  $TH$ .

6. Given line  $l$  and  $m\angle a : m\angle b : m\angle c = 2:3:4$ , find the numerical value of  $m\angle a$ .



7. The measure of an angle is 24 degrees less than twice the measure of its supplement. Find the measure of the angle.