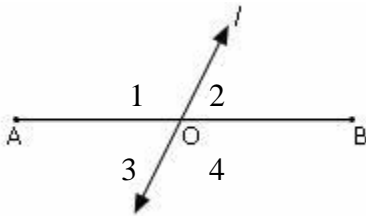


Name: \_\_\_\_\_  
 Date: \_\_\_\_\_  
 Class: \_\_\_\_\_

Geometry  
 Unit 7  
 Problem Set

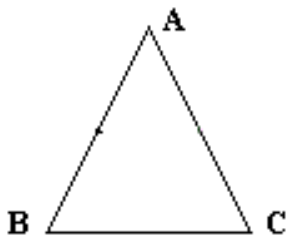
For #1 through 5, based on the diagram and any given information pick which of the 3 statements must be **TRUE** and explain why each wrong answer is wrong. [2 points each]

1)



- a)  $\angle 1 \cong \angle 3 \rightarrow$  Vertical angles are congruent
- b)  $m\angle 1 + m\angle 4 = 180^\circ \rightarrow$  lin pair is supp
- c)  $\angle 2 \cong \angle 3 \rightarrow$  Vertical angles are congruent

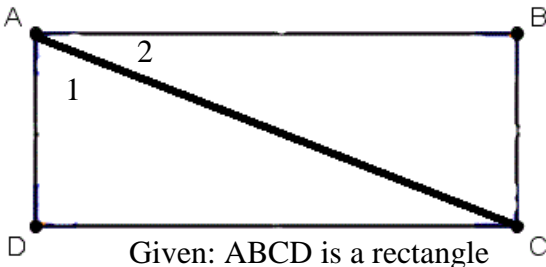
2)



- a)  $\angle A \cong \angle B \rightarrow$  isos triangle has  $\cong$  base  $\angle s$
- b)  $\overline{BC} \cong \overline{AC} \rightarrow$  isos triangle has  $\cong$  legs
- c)  $\angle C \cong \angle B \rightarrow$  isos triangle has  $\cong$  base  $\angle s$

Given:  $\triangle ABC$  is isos (A is vertex)

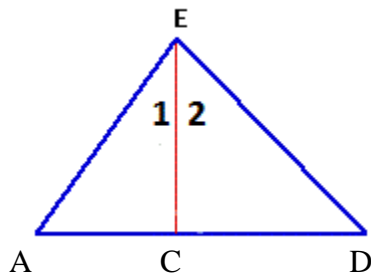
3)



Given: ABCD is a rectangle

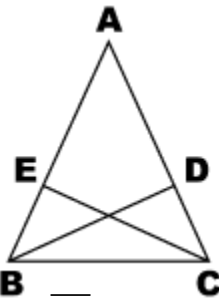
- a)  $\angle 1 \cong \angle 2 \rightarrow$  diags of a rect bisect corner  $\angle s$
- b)  $\overline{DC} \cong \overline{BC} \rightarrow$  opp sides of rect  $\cong$
- c)  $m\angle 1 + m\angle 2 = 90^\circ \rightarrow$  rect has 4 rt  $\angle s$  and sum of parts = whole

4)



- a)  $\angle 1 \cong \angle 2 \rightarrow \overline{EC}$  bisects  $\angle AED$
- b)  $\overline{EC} \cong \overline{EC} \rightarrow$  Anything  $\cong$  to itself
- c)  $\overline{AC} \cong \overline{CD} \rightarrow$  altitude bisects the base

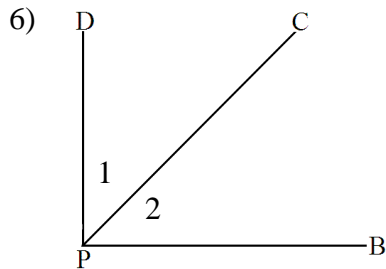
5)



Given:  $\overline{CE}$  is a median

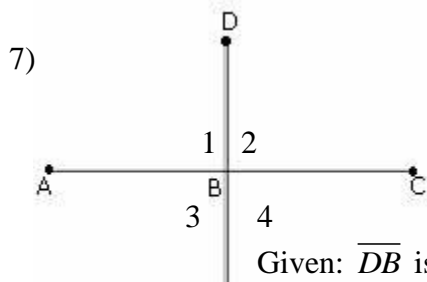
- a) D is the midpoint of  $\overline{AC} \rightarrow$  median connects vertex to midpoint
- b)  $\overline{AC} \cong \overline{AB} \rightarrow$  isos triangle has  $\cong$  legs
- c) E is the midpoint of  $\overline{AB} \rightarrow$  median connects vertex to midpoint

In #6 through 10 based on the diagram and any given information pick which of the following 3 choices does **NOT** have to be true and explain why you picked the answer you picked [2 points each]



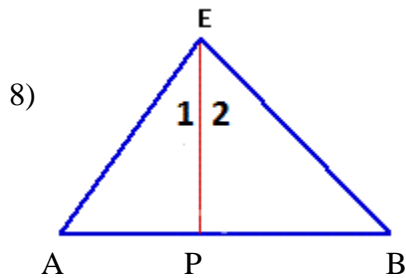
- a)  $\angle 1 \cong \angle 2 \rightarrow$  bisector creates two  $\cong$  parts
- b)  $m\angle DPB = 90^\circ \rightarrow \perp$  lines make right  $\angle$ s
- c)  $m\angle 1 + m\angle 2 = m\angle DPB \rightarrow$  sum of parts = whole

Given:  $\overrightarrow{PB} \perp \overrightarrow{PD}$



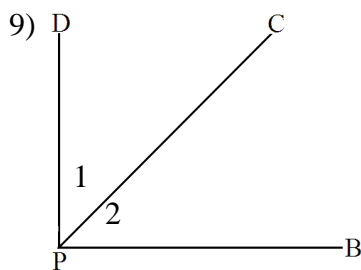
- a)  $m\angle 2 = 90^\circ \rightarrow \perp$  lines make right  $\angle$ s
- b)  $\angle 1 \cong \angle 3 \rightarrow$  Vertical angles are congruent
- c)  $\overline{BC} \cong \overline{AB} \rightarrow$  bisector creates two  $\cong$  parts

Given:  $\overline{DB}$  is the perpendicular bisector of  $\overline{AC}$



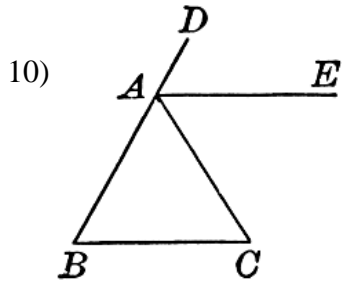
- a)  $m\angle EPB = 90^\circ \rightarrow \perp$  lines make right  $\angle$ s
- b)  $\overline{AP} \cong \overline{PB} \rightarrow$  Altitude bisects the base
- c)  $m\angle 1 + m\angle A + m\angle EPA = 180^\circ \rightarrow 3 \angle$ s of a  $\Delta = 180^\circ$

Given:  $\overline{PE} \perp \overline{AB}$



- a)  $m\angle 1 + m\angle 2 = m\angle DPB \rightarrow$  sum of parts = whole
- b)  $\angle 1 \cong \angle 2 \rightarrow$  bisector creates two  $\cong$  parts
- c)  $m\angle DPB = 90^\circ \rightarrow \perp$  lines make right  $\angle$ s

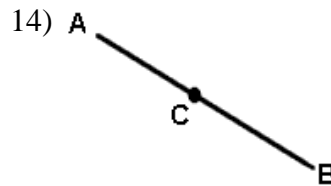
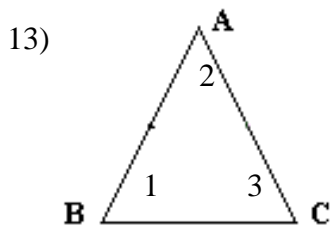
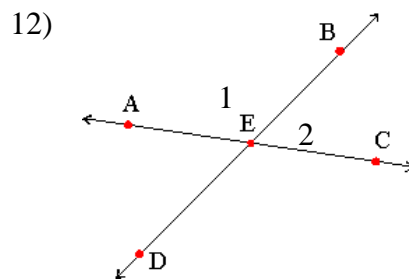
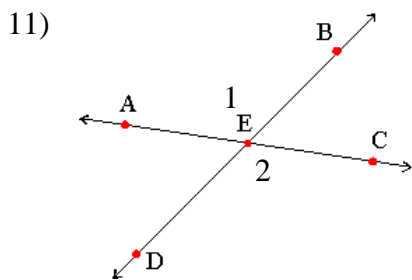
Given:  $\overrightarrow{PC}$  bisects  $\angle DPB$



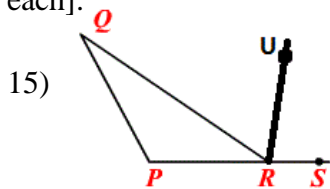
- a)  $\angle DAE \cong \angle EAC \rightarrow$  bisector creates two  $\cong$  parts  
 b)  $\angle EAC \cong \angle C \rightarrow$   $\parallel$  lines create  $\cong$  alt int  $\angle$ s  
 c)  $\angle DAE \cong \angle B \rightarrow$   $\parallel$  lines create  $\cong$  corr  $\angle$ s

Given:  $\overline{AE} \parallel \overline{BC}$

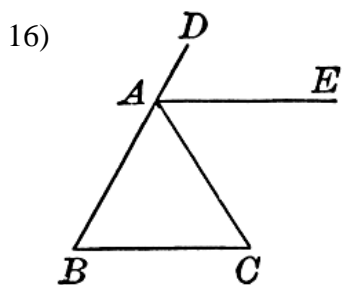
For each diagram provide one statement that must be true and give a reason (for diagrams with numbers your statement must involve the numbers [2 points each]).



For each diagram you are given one piece of information. Write a new piece of information that you can learn directly from the given information with a reason [2 points each].

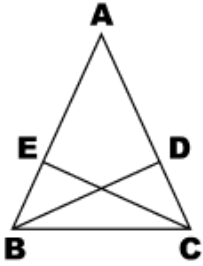


Given:  $\overline{RU}$  bisects  $\angle QRS$



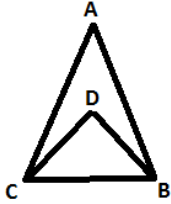
Given:  $\overline{AE} \parallel \overline{BC}$

17)



Given:  $\overline{BD}$  is a median

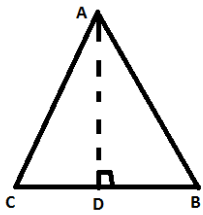
18)



Given:  $\triangle DBC$  is isos (D is vertex)

Create a 5 step “proof” for each of the following [5]

19)



Given:  $\overline{AD}$  bisects  $\overline{BC}$   
 $\overline{AD} \perp \overline{BC}$

20) Create a 7 step “proof” for the following. [5]



Given:  $\triangle ABC$  is isosceles with  $\angle A$  as the vertex angle  
 $\overline{CE}$  bisects  $\angle ACB$   
 $\overline{BD}$  bisects  $\angle ABC$