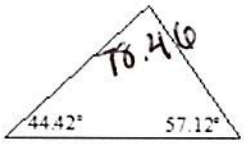
Name: Key Date: _____

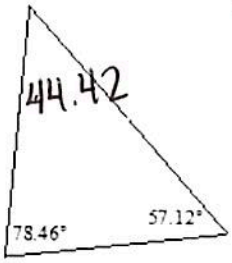
UNIT 5 **LESSON 10**

AIM: HOW DO WE PROVE TRIANGLES ARE SIMILAR USING AA (ANGLE-ANGLE)

Do Now: Are the following triangles similar? Explain.

yes, Δ's are ~ b/c ∠'s are ≅





WHAT DO WE NEED IN ORDER FOR TWO TRIANGLES TO BE SIMILAR?

- congruent angles and proportional sides!
- Therefore, to prove triangles are similar is to prove two angles are congruent.
- We call this method AA !

EXAMPLE:

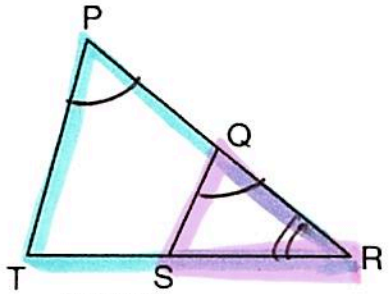
Given: Q is a point on $\overline{PR}$, S is a point on $\overline{TR}$, $\overline{QS}$ is drawn

$\angle RPT \cong \angle RQS$

Prove: $\Delta PRT \sim \Delta QRS$

A | ∠R ≅ ∠R

A | ∠RPT ≅ ∠RQS ✓

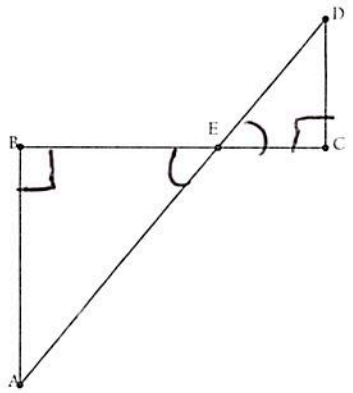


STATEMENT	REASON
① Q is a point on $\overline{PR}$, S is a point on $\overline{TR}$, $\overline{QS}$ is drawn. ∠RPT ≅ ∠RQS (A) ✓	① Given
② ∠R ≅ ∠R (A) ✓	② Reflexive Property
③ ΔPRT ~ ΔQRS	③ AA ≅ AA

1. Given: $\overline{DC} \perp \overline{BC}$, $\overline{AB} \perp \overline{BC}$
   Prove: $\Delta ABE \sim \Delta DCE$

↱ right ∠'s!

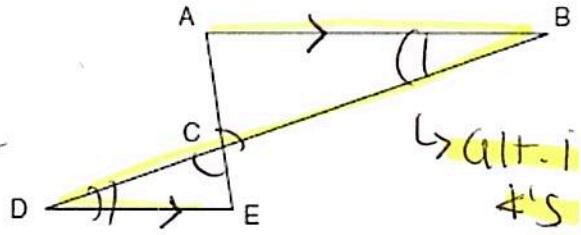
A	∠B ≅ ∠C ✓
A	∠BEA ≅ ∠DCE ✓



STATEMENT	REASON
① $\overline{DC} \perp \overline{BC}$, $\overline{AB} \perp \overline{BC}$	① Given
② ∠B ≅ ∠C (A) ✓	② ⊥ lines form ≅ right ∠
③ ∠BEA ≅ ∠DCE (A) ✓	③ Vertical ∠'s are ≅
④ $\Delta ABE \sim \Delta DCE$	④ AA ≅ AA

2. Given: $\overline{AE}$ and $\overline{BD}$ intersect at C, and $\overline{AB} \,//\, \overline{ED}$
   Prove: $\Delta ABC \sim \Delta EDC$

A	∠B ≅ ∠D ✓
A	∠ACB ≅ ∠ECD ✓



↳ alt. int. ∠'s

STATEMENT	REASON
① $\overline{AE}$ & $\overline{BD}$ intersect @ C $\overline{AB} \,//\, \overline{ED}$	① Given
② ∠B ≅ ∠D (A) ✓	② // lines create ≅ alt. int. ∠'s
③ ∠ACB ≅ ∠ECD (A) ✓	③ Vertical ∠'s are ≅
④ $\Delta ABC \sim \Delta EDC$	④ AA ≅ AA

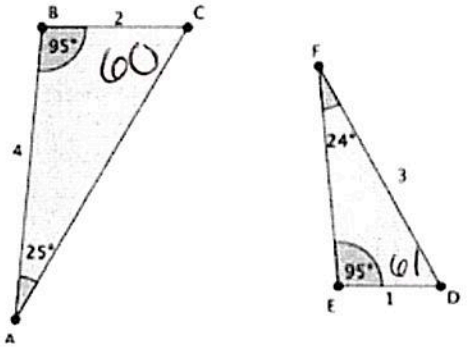
Name: Key Date: _____

UNIT 5 **LESSON 10**

HOMEWORK

1. Are the following triangles similar? ***Explain!***

NO! The ∠'s are NOT ≅

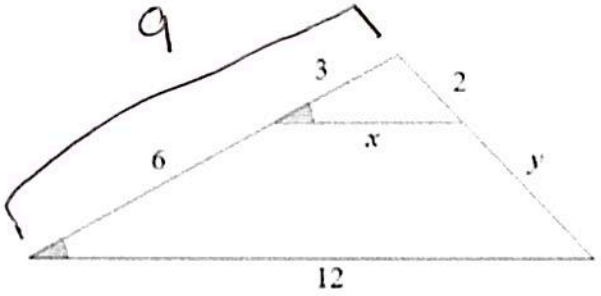


2. If the triangles below are similar, find x and y

$\frac{3}{x} = \frac{9}{12}$ $\quad$ $\frac{3}{6} = \frac{2}{y}$

$9x = 36$ $\quad$ $12 = 3y$

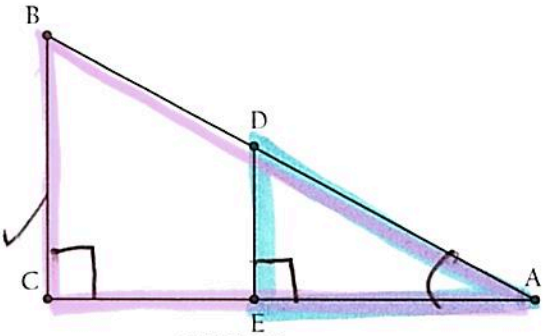
$x = 4$ $\quad$ $y = 4$



3. Given: In right triangle ABC, $\angle C = 90°$, $\overline{DE} \perp \overline{AC}$

Prove: $\Delta ADE \sim \Delta ABC$

A	∠A ≅ ∠A ✓
A	∠BCA ≅ ∠DEA ✓



STATEMENT	REASON
① Right ΔABC, $\angle C = 90°$, $\overline{DE} \perp \overline{AC}$	① Given
② ∠DEA is a right ∠	② ⊥ lines form right ∠s
③ ∠BCA ≅ ∠DEA (A) ✓	③ All right ∠'s are ≅
④ ∠A ≅ ∠A (A) ✓	④ Reflexive Property
⑤ $\Delta ADE \sim \Delta ABC$	⑤ AA ≅ AA