Name: _____ Date: _____

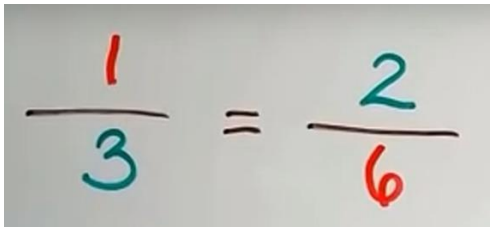
UNIT 5 **LESSON 12**

AIM: THE PRODUCT OF THE MEANS EQUALS THE PRODUCT OF THE EXTREMES

Do Now: Simplify the following fractions

a) $\frac{2}{6}$ b) $\frac{5}{15}$ c) $\frac{10}{35}$

WHY can we do this?



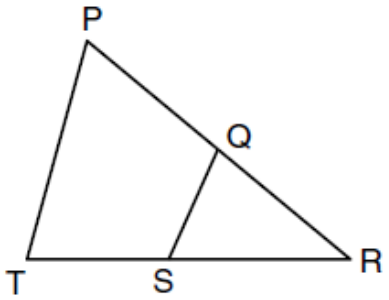
- We solve proportions by _____ _____. We can do this because the product of the _____ equals the product of the _____!
- When triangles are similar, angles are _____ and sides are in _____.
- Therefore, to prove triangles are similar, we need to state _____ are congruent using _____.
- Once we have similar triangles we can say corresponding _____ or similar triangles are in _____.
- Finally, we can say the product of the _____ equals the product of the _____!
- How will we know if our proof involves us stating the product of the means equals the product of the extremes? The prove statement will be a _____.

ORDER MATTERS!

	PROVE STATEMENT	**REASON**
1.	**Similarity Statement** $\Delta ABC \sim \Delta DEF$	$AA \cong AA$
2.	**Proportion** $\frac{AB}{BC} = \frac{DE}{EF}$	Corresponding parts of similar triangles are in proportion.
3.	**Product** $BCxDE = ABxEF$	The product of the means equals the product of the extremes

1. Given: Q is a point on $\overline{PR}$, S is a point on $\overline{TR}$, $\overline{QS}$ is drawn
   ÐRPT @ÐRQS

   Prove: $PR \cdot RS = RT \cdot QR$

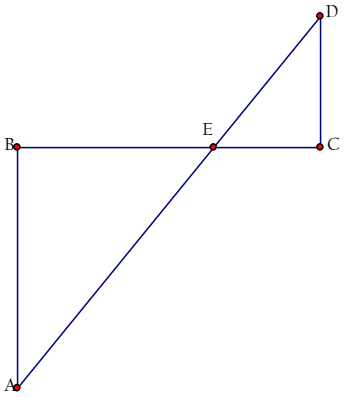


What proportion can we set up that will give us this product?

What triangles do we need to prove are similar first?

STATEMENT	REASON

2. Given: $\overline{DC} \perp \overline{BC}$, $\overline{AB} \perp \overline{BC}$
   Prove: $AB \cdot EC = EB \cdot DC$

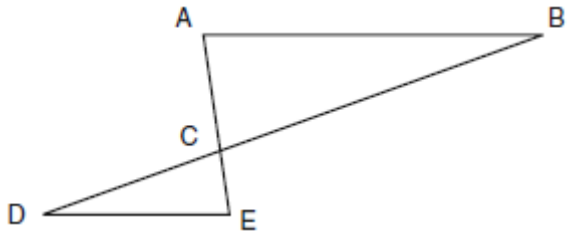


What proportion can we set up that will give us this product?

What triangles do we need to prove are similar first?

STATEMENT	REASON

3. Given: $\overline{AE}$ and $\overline{BD}$ intersect at *C*, and $\overline{AB} \,//\, \overline{ED}$
   Prove: $AB \cdot DC = BC \cdot ED$



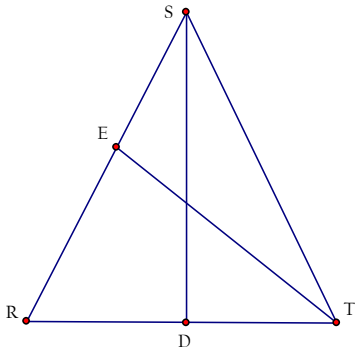
What proportion can we set up that will give us this product?

What triangles do we need to prove are similar first?

STATEMENT	**REASON**

4. Given: ΔSRT with $\overline{SR} \cong \overline{ST}$
$\overline{TE} \perp \overline{RS}$, $\overline{SD} \perp \overline{RT}$

Prove: $ER \cdot SD = TE \cdot DT$



What proportion can we set up that will give us this product?

What triangles do we need to prove are similar first?

STATEMENT	**REASON**

Name: _____ Date: _____

UNIT 5 **LESSON 12**

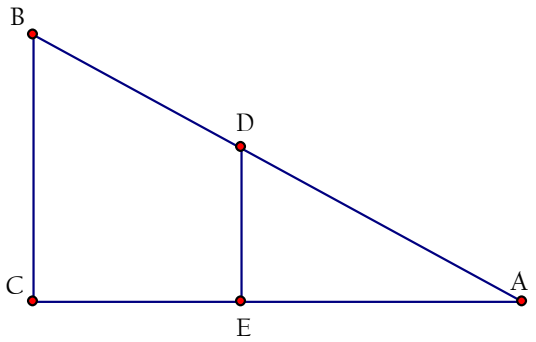
HOMEWORK

1. For the following, fill in the missing pieces.

PRODUCT	$ER \cdot SD = TE \cdot DT$		$EB \cdot DC = AB \cdot EC$	
PROPORTION		$\frac{AD}{ED} = \frac{AB}{CB}$		
SIMILARITY STATEMENT				$\Delta PRT \sim \Delta QRS$

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

Prove: $\frac{AD}{ED} = \frac{AB}{CB}$



What proportion can we set up that will give us this product?

What triangles do we need to prove are similar first?

STATEMENT	REASON