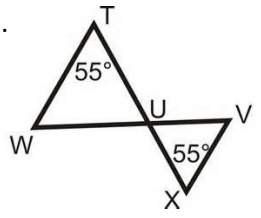
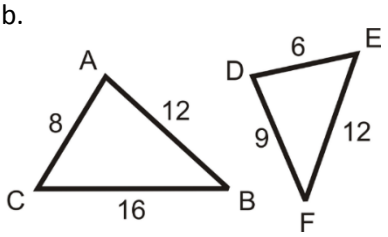
Similarity, Dilations, Triangle Theorem Review Name_____ Block___

1. Determine if the following triangles are similar and show how you decided. If they are similar write a similarity statement.

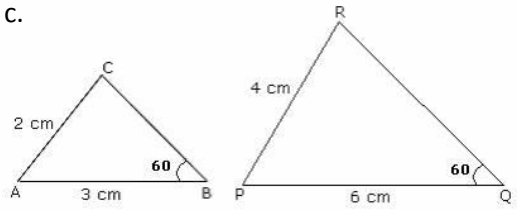
a.



b.



c.

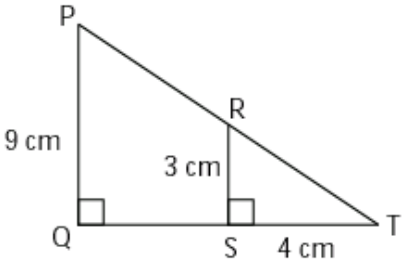


2. Looking at the triangles in the figure on the right:

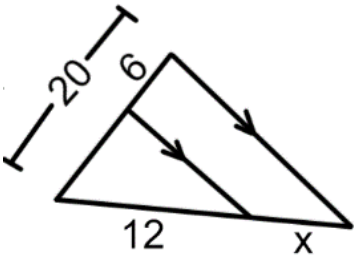
a. Are the two triangles similar? How do you know?

b. What is the length of *QT*?

c. If *PT* is 15 cm, what is the length of *RT*?

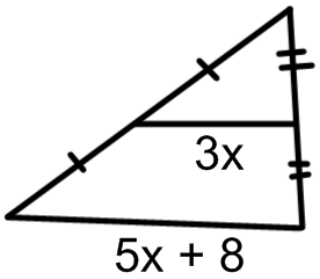


3. Find the value of x for each of the following.

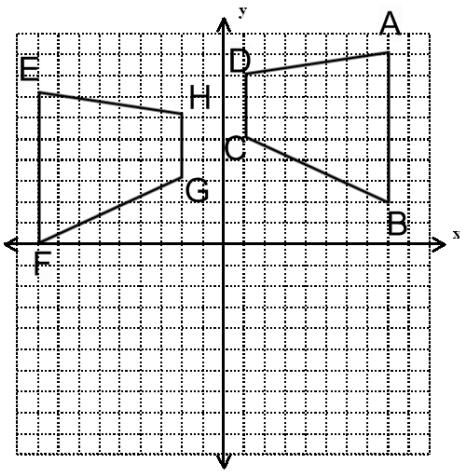


4. Find the value of x in the following problem.

b.

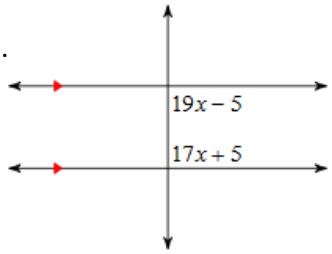


5. Determine if $ABCD \cong EFGH$. Explain how you know.

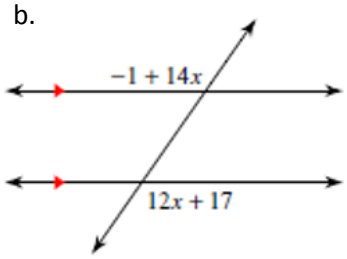


6. Find the value of x in each.

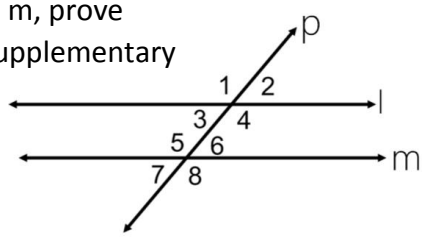
a.



b.

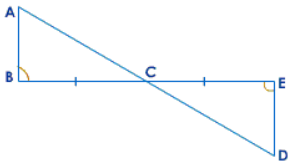


7. Given that l || m, prove ∠1 and ∠7 are supplementary

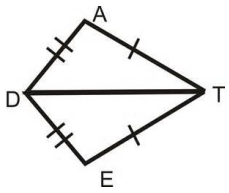


Statement	Reason
_____	Given
∠1 ≅ ∠5	_____
_____	Definition of Congruence
∠5 and ∠7 are linear pairs	_____
m∠5+m∠7=180°	Linear pairs are supplementary
_____	Substitution
∠1 and ∠7 are supplementary	_____

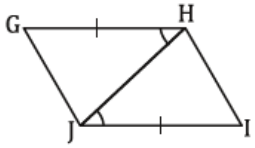
8. **Prove ΔABC≅ ΔE**



9. Prove ΔADT≅ ΔEDT.

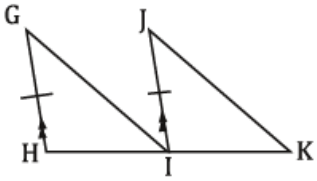


10. Given: $\overline{GH} \cong \overline{JI}$, ∠GHJ≅∠IJH



Prove: $\overline{GJ} \cong \overline{HI}$

11. Given: $\overline{GH} \| \overline{JI}$, I is the midpoint of HK and $\overline{GH} \cong \overline{JI}$



Prove: ∠G≅∠J

Statements	Reasons
1. $\overline{GH} \| \overline{JI}$	1.
2. I is the midpoint of $\overline{HK}$	2.
3.	3. Given
4. $\overline{HI} \cong \overline{IK}$	4.
5.	5. Corresponding
6.	6. SAS
7. ∠G≅∠J	7.

1. Explanations excluded, a. Similar by AA b. Similar by SSS c. Not similar

2. a. Yes by AA explanation excluded, b. QT=12 cm c. RT=5 cm

3. a. x=5.143 b. x=8

4. ABCD can be mapped EFGH by a reflection over the y-axis then a translation left 1 and down 2. A reflection followed by a translation is a sequence of rigid motions. Rigid motions create congruent figures thus $ABCD \cong EFGH$.

5. a. x=5, b. x=9

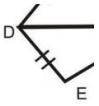
6. $l||m, Corr.\ Angles\ Post., m\angle 1 = m\angle 5, Definition\ of\ Linear\ Pairs, m\angle 1 + m\angle 7 = 180, Def.\ of\ Supplementary$

7.

Statement	Reason
$\angle ABC \cong \angle DEC$	Given
$\overline{BC} \cong \overline{EC}$	Given
$\angle ACB \cong \angle DCE$	Vert. $\angle$'s
$\triangle ABC \cong \triangle DEC$	ASA

8.

Statement	Reason
$\overline{AT} \cong \overline{ET}$	Given
$\overline{AD} \cong \overline{ED}$	Given
$\overline{DT} \cong \overline{DT}$	Reflexive Property
$\triangle ADT \cong \triangle EDT$	SSS

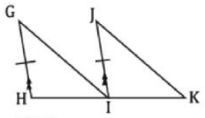


9.

Statement	Reason
$\overline{GH} \cong \overline{IJ}$	Given
$\angle GHJ \cong \angle IJH$	Given
$\overline{HJ} \cong \overline{JH}$	Reflexive Prop.
$\triangle GHJ \cong \triangle IJA$	SAS
$\overline{GJ} \cong \overline{HI}$	CPCTC

10.

16. Given: $\overline{GH}||\overline{JI}$, I is the midpoint of HK and $\overline{GH} \cong \overline{JI}$



Prove: $\angle G \cong \angle J$

Statements	Reasons
1. $\overline{GH}||\overline{JI}$	1. Given
2. I is the midpoint of $\overline{HK}$	2. Given
3. $\overline{GH} \cong \overline{JI}$	3. Given
4. $\overline{HI} \cong \overline{IK}$	4. Def of midpoint
5. $\angle GHI \cong \angle JIK$	5. Corresponding
6. $\triangle GHI \cong \triangle JIK$	6. SAS
7. $\angle G \cong \angle J$	7. CPCTC