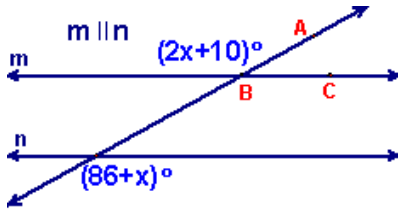
Unit 2 Test Review Part 1
Angles, Similarity, Dilations Congruence, and Proofs

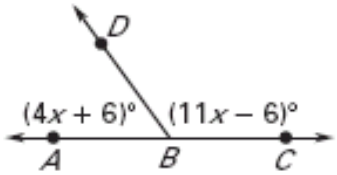
Theorems about Lines and Angles

1. Name the relationship and then find the missing angle measures by solving for x.

a.



b.



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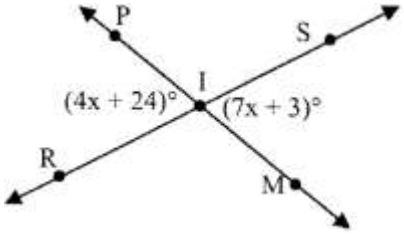

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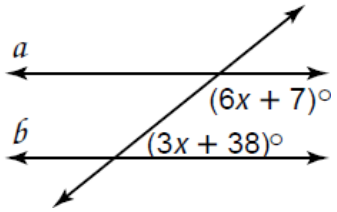
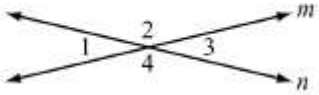


2. The measure of one angle is 38 more than three times its supplement. Find the measure of each angle.

3. Determine what steps are missing from the following proofs.



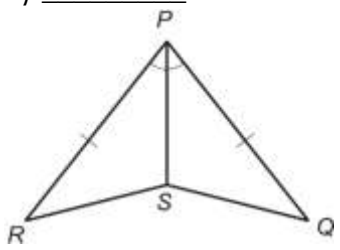
Prove: $\angle 1 \cong \angle 3$

Statement	Justification
1. $m\angle 1 + m\angle 2 = 180$	1.
2. $m\angle 2 + m\angle\_\_\_\_ = 180$	2.
3. $m\angle\_\_\_\_ + m\angle 3 = 180$	3. Substitution
4.	4. Definition of congruent angles

Congruent Triangles

Determine whether each pair of triangles is congruent. If so, write a congruence statement, and explain why the triangles are congruent.

4) _____



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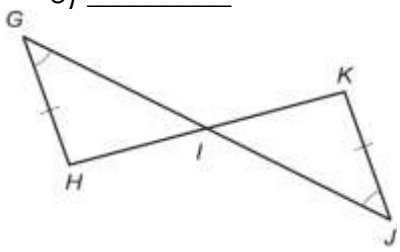
5) _____



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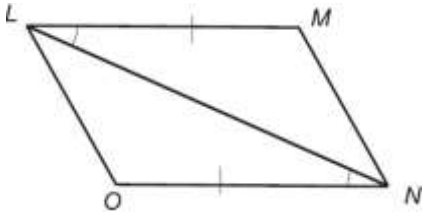
6) _____



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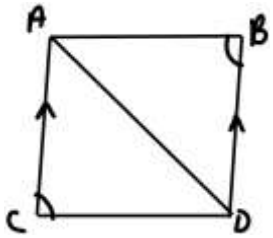
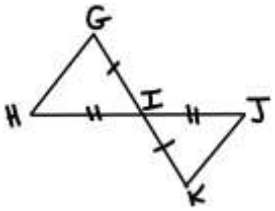
7) For ΔABC and ΔDEF the following is given: $\angle A \cong \angle D, \angle B \cong \angle E$, $\overline{AB} \cong \overline{DE}$. Sketch a picture to determine if the two triangles can be proven congruent. If so, create a two column proof.

8. Complete the following proofs.



Statement	Reason
1. $\overline{AC} \parallel \overline{DB}$	1.
2.	2. Given
3. $\angle CAD \cong \angle BDA$	3.
4.	4. Reflexive Property
5. $\Delta ACD \cong \Delta$ _____	5.

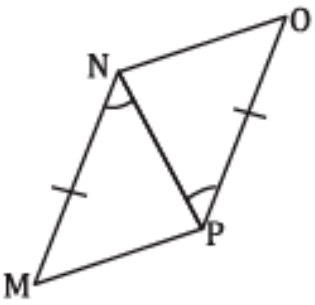


Statement	Reason
1. $\overline{GI} \cong \overline{KI}$	1.
2. $\overline{HI} \cong \overline{JI}$	2.
3. $\angle GIH \cong \angle KIJ$	3.
4. $\Delta GIH \cong \Delta KIJ$	4.

CPCTC: _____

9. Complete the following proofs.

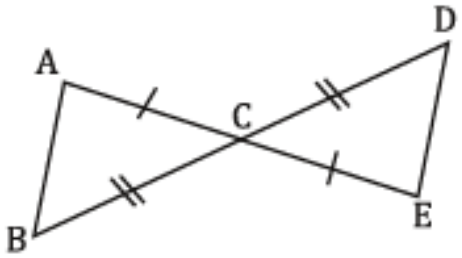
Given: $\angle MNP \cong \angle OPN$, and $\overline{MN} \cong \overline{OP}$



Prove: $\overline{MP} \cong \overline{NO}$

Statements	Reasons
1.	1. Given
2. $\overline{MN} \cong \overline{OP}$	2.
3. $\overline{NP} \cong \overline{NP}$	3.
4. $\triangle MNP \cong \triangle OPN$	4.
5.	5. CPCTC

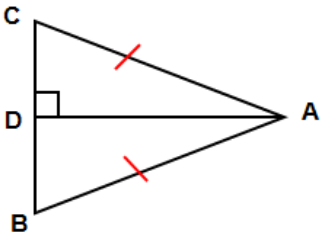
Given: $\overline{AC} \cong \overline{CE}$, $\overline{DC} \cong \overline{BC}$



Prove: $\angle B \cong \angle D$

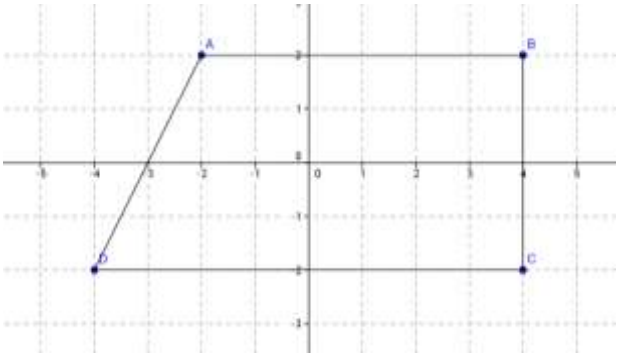
Statements	Reasons
1.	1.
2.	2. Given
3. $\angle ACB \cong \angle DCE$	3.
4. $\triangle ABC \cong \triangle DEF$	4.
5. $\angle B \cong \angle D$	5.

10. Write either a two-column proof or a paragraph proof to show that the base angles in an isosceles triangle are congruent. In other words, show that $\angle C \cong \angle B$.

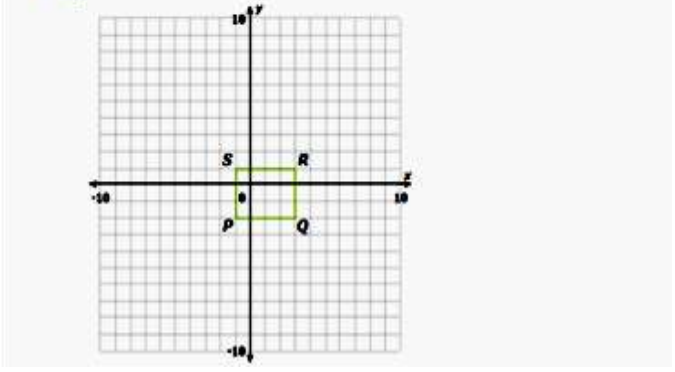


Dilations

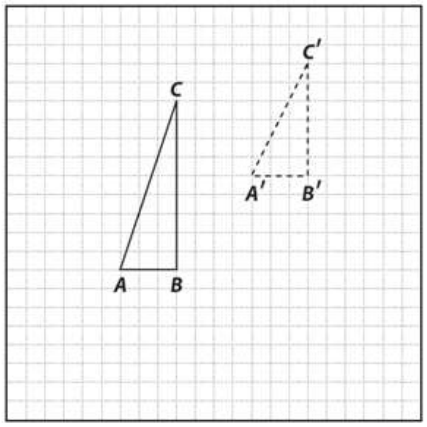
11. Dilate the figure with a scale factor of ½ and the center at the (0,0). Then list the location of the dilated points.



12. Write the coordinates of the vertices after a dilation with a scale factor of 3, centered at the origin.



13. Are the two figures below congruent, similar, or neither?



a. Similar, Δ*ABC* has undergone a vertical stretch

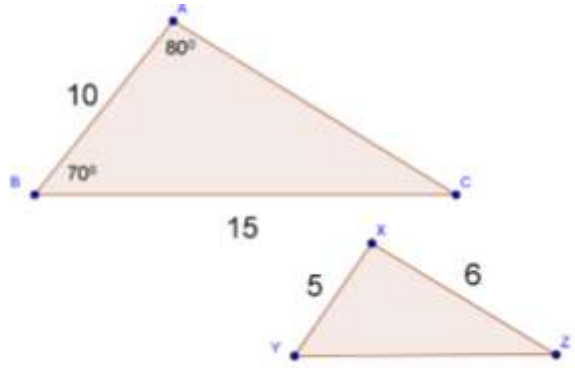
b. Congruent, Δ*ABC* has undergone a vertical and horizontal shift.

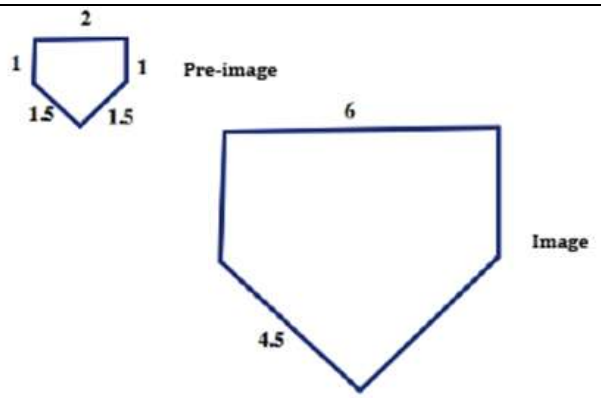
c. Similar, Δ*ABC* has undergone a vertical compression

d. Not congruent nor similar, Δ*ABC* has undergone a vertical compression

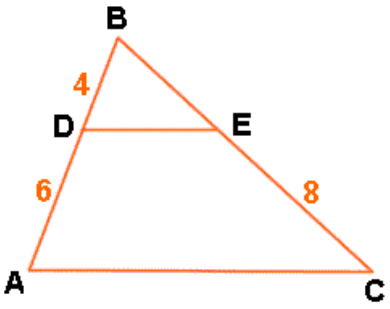
Similar Triangles

14. The following shapes are similar. Find the scale factor, the measure of each side, and the measure of each angle if possible.

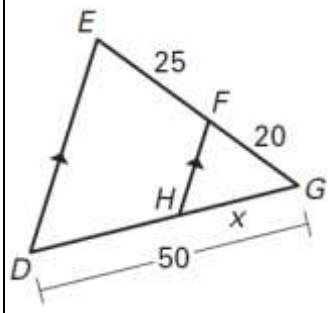




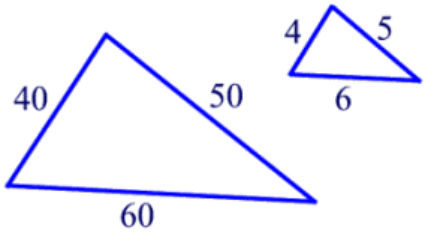
15. In the following diagram, $AC \| DE$. Find the length of side BE.

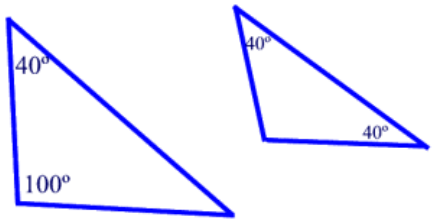


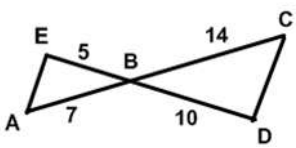
16. Find the length of HG.



16. Determine if the following triangles can be proven similar. If they can, tell by which theorem.





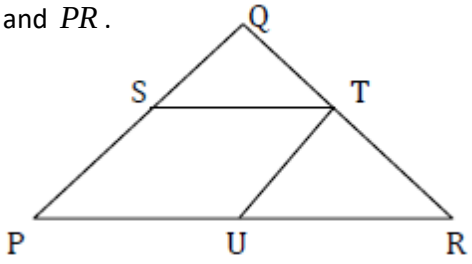


17. A flagpole casts a shadow 12 feet long at the same time that a vertical sign 8 feet tall casts a shadow 3 feet long. Sketch a picture and then use similar triangles to find the height of the flagpole.

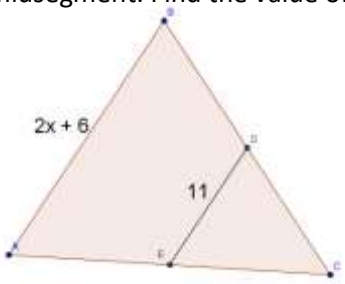
18. Mentone, Indiana claims to have the world's largest egg sculpture. A 6-foot tall person standing next to the egg sculpture casts a shadow that is 2 feet long. If the egg casts a shadow that is 4 feet long, how tall is the sculpture?

Triangle Midsegment Theorem

19. In the diagram, $\overline{ST}$ and $\overline{UT}$ are midsegments. If $\overline{PQ}$ is 12cm and $\overline{ST}$ is 5cm, find the length of $\overline{UT}$ and $\overline{PR}$.

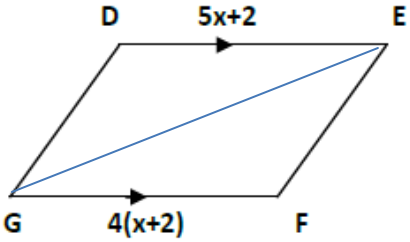


20. In the diagram to the right, line $\overline{DE}$ is a midsegment. Find the value of x.



Properties of Parallelograms

21. $\Delta GDE \cong \Delta EFG$. Find the length of *DE*.



22. $\Delta VWT \cong \Delta TUV$. Find the value of x.