Name _____ Mr. Schlansky Date _____ Geometry

Determining Whether Triangles are Similar

1. Determine whether the following triangles are similar. Explain your answer.



2. Determine whether the following triangles are similar. Explain your answer.



3. In the diagram below, $\overline{AR} = 15$, $\overline{RF} = 12$, $\overline{DO} = 10$, $\overline{OG} = 8$, and $\angle ARF \cong \angle DOG$. Must $\triangle ARF \sim \triangle DOG$? Explain your answer.



4. In the diagram below, $\overline{AR} = 18$, $\overline{RF} = 15$, $\overline{DO} = 12$, $\overline{OG} = 10$, and $\angle RAF \cong \angle ODG$. Must $\triangle ARF \sim \triangle DOG$? Explain your answer.



5. In the diagram below, $\overline{AF} = 20$, $\overline{RF} = 12$, $\overline{DG} = 12$, $\overline{OG} = 4$, and $\angle R \cong \angle O$. Must $\triangle ARF \sim \triangle DOG$? Explain your answer.



6. In the diagram below, $\triangle DEF$ is the image of $\triangle ABC$ after a clockwise rotation of 180° and a dilation where AB = 3, BC = 5.5, AC = 4.5, DE = 6, FD = 9, and EF = 11.



Show that $\triangle ABC \sim \triangle DEF$

7. Triangles *ABC* and *DEF* are drawn below.

If AB = 9, BC = 15, DE = 6, EF = 10, and $\angle B \cong \angle E$, are the triangles similar? Explain your answer.



8. Triangles *RST* and *XYZ* are drawn below. If RS = 6, ST = 14, XY = 9, YZ = 21, and $\angle S \cong \angle Y$, is $\triangle RST$ similar to $\triangle XYZ$? Justify your answer.



9. In the diagram below, $\angle GRS \cong \angle ART$, GR = 36, SR = 45, AR = 15, and RT = 18.



Which triangle similarity statement is correct?

- 1) $\triangle GRS \sim \triangle ART$ by AA.
- 2) $\triangle GRS \sim \triangle ART$ by SAS.

3) $\triangle GRS \sim \triangle ART$ by SSS.

4) $\triangle GRS$ is not similar to $\triangle ART$.

10. Using the information given below, which set of triangles can not be proven similar?



11. In the diagram below, $\triangle ABC \sim \triangle DEF$.

If AB = 6 and AC = 8, which statement will justify similarity by SAS?

- 1) DE = 9, DF = 12, and $\angle A \cong \angle D$
- 2) DE = 8, DF = 10, and $\angle A \cong \angle D$
- 3) DE = 36, DF = 64, and $\angle C \cong \angle F$
- 4) DE = 15, DF = 20, and $\angle C \cong \angle F$



12. In the diagram below, $\triangle ABC \sim \triangle ADE$.

Which measurements are justified by this similarity?

1) AD = 3, AB = 6, AE = 4, and AC = 122) AD = 5, AB = 8, AE = 7, and AC = 103) AD = 3, AB = 9, AE = 5, and AC = 104) AD = 2, AB = 6, AE = 5, and AC = 15 13. In the diagram below, AE = 15, EB = 27, AF = 20, and FC = 36. Is $\triangle ABC \sim \triangle AEF$. Explain your answer.



14. In $\triangle ADC$ below, \overline{EB} is drawn such that AB = 4.1, AE = 5.6, BC = 8.22, and ED = 3.42. Is $\triangle ABE$ similar to $\triangle ADC$? Explain why.



15. In the diagram below, AC = 7.2 and CE = 2.4. Which statement is *not* sufficient to prove $\triangle ABC \sim \triangle EDC$?

D

1) $AB \parallel ED$

B

2) DE = 2.7 and AB = 8.1

7.2

2.4

- 3) CD = 3.6 and BC = 10.8
- 4) DE = 3.0, AB = 9.0, CD = 2.9, and BC = 8.7