Homework 4.4 – Definition of Similarity Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Mathematically prove that $∆ABC\~∆DEF$. Show and label all your work.



2. The figure on the right is the result of a translation followed by a dilation of the figure on the left. Scale factor 3.

Which of the following statements must be true? *Choose all that apply.*

a. $BC=15cm$ d. $m∠D=52.8°$

b. $CD=9cm$ e. $m∠A=26.7°$

c. $\frac{CD}{BC}=1.8$ f. $\frac{m∠A}{m∠D}≈0.506$

Not to Scale.

3. The two given figures are similar. No scale factor has been specified.



Which of the following statements must be true? *Choose all that apply.*

a. $d=10$ d. $m∠B=74°$

b. $\frac{b}{c}=\frac{4}{9}$ e. $\frac{m∠B}{m∠C}=\frac{74}{143}$

c. $\frac{a}{5}=\frac{d}{10}$ f. $\frac{m∠B}{74}=\frac{m∠A}{53}$

4. $∆ABC$ is dilated with a scale factor of 2 and with *D*  as the center of dilation.



As a result of that dilation, which of the following are true? *Choose all that apply.*

a. *A*, *B*, and *A’* are collinear

b. *B*, *C*, and *B’* are collinear

c. *A*, *C*, and *C’* are collinear

d. $AB=2A'B'$

e. $AB=\frac{1}{2}A'B'$

f. $AB=A'B'$