

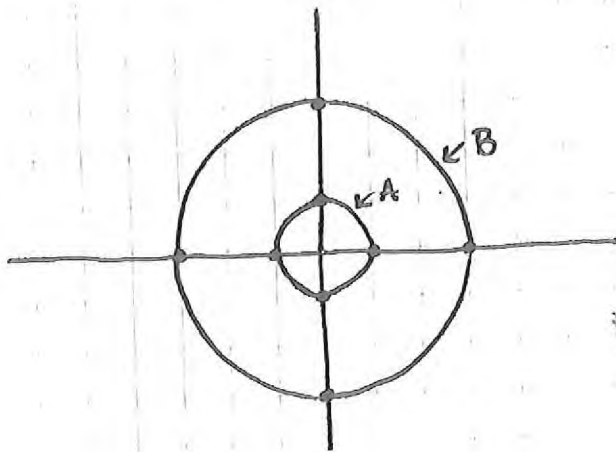
# Similarity of Circles

#3

What does it mean for two figures to be similar?

Remember: If two figures are similar, there is a sequence of \_\_\_\_\_ that maps one figure onto the other.

Is Circle A similar to Circle B?



\*Complete #1-6 on the back.\*

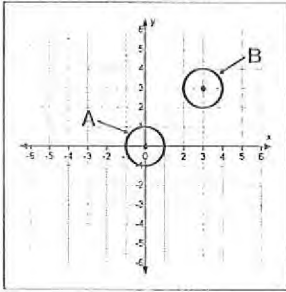
What conclusion can you draw about the similarity of circles? \_\_\_\_\_

Ex. 1 Prove that circle A with center  $(2, 1)$  and radius 4 is similar to circle B with center  $(-1, -1)$  and radius 2.

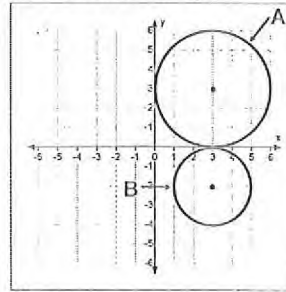
Ex. 2 Prove that circle A with center  $(0, 0)$  and radius 1 is similar to circle B with center  $(0, 6)$  and radius 3.

Determine if the two circles are similar. Explain your reasoning.

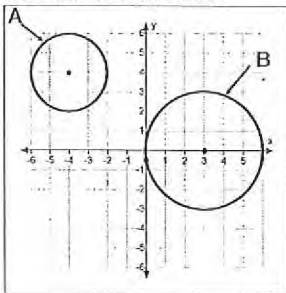
#1: Are the two circles similar?



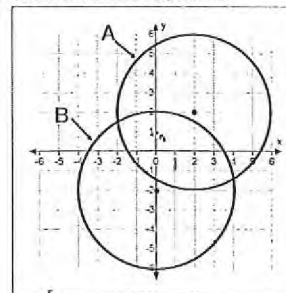
#2: Are the two circles similar?



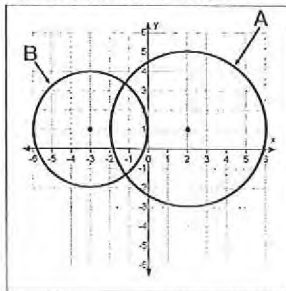
#3: Are the two circles similar?



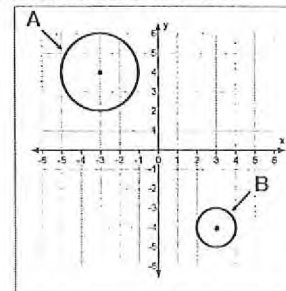
#4: Are the two circles similar?



#5: Are the two circles similar?



#6: Are the two circles similar?



# Similarity of Circles

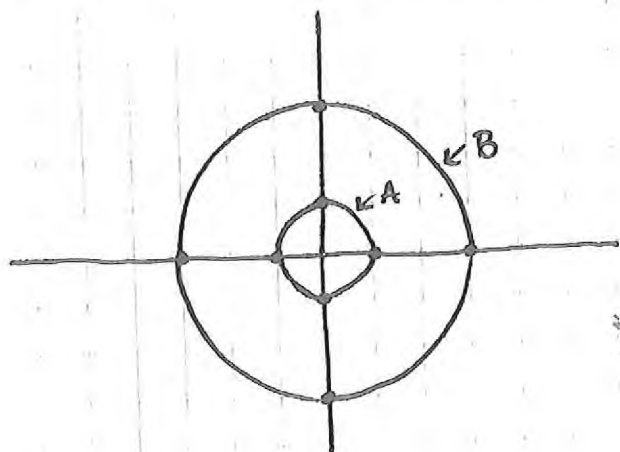
#3

What does it mean for two figures to be similar?

same shape  
different size (dilation)  
corresponding angles congruent  
corresponding sides proportional

Remember: If two figures are similar, there is a sequence of similarity transformations that maps one figure onto the other.

Is Circle A similar to Circle B?



Circle A was dilated by a factor of 3 to create Circle B ... so, YES they are similar.

\*Complete #1-6 on the back.\*

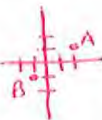
What conclusion can you draw about the similarity of circles? All circles are similar because they have the same shape.

EX. 1 Prove that circle A with center  $(2, 1)$  and radius 4 is similar to circle B with center  $(-1, -1)$  and radius 2.

Circle A was dilated by a factor of  $\frac{1}{2}$ , translated down 2 + left 3 units to create circle B.

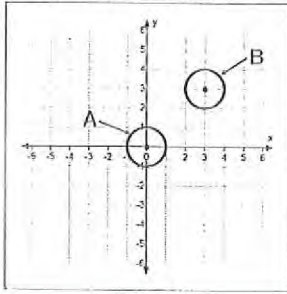
EX. 2 prove that circle A with center  $(0, 0)$  and radius 1 is similar to circle B with center  $(0, 6)$  and radius 3.

Circle A was dilated by a factor of 3 and translated up 6 units to create circle B.



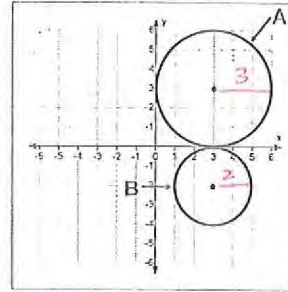
Determine if the two circles are similar. Explain your reasoning.

#1: Are the two circles similar?



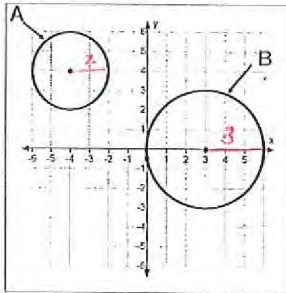
Yes, circle A was dilated by a SF of 1, translated up 3 units + right 3 units to create circle B.

#2: Are the two circles similar?



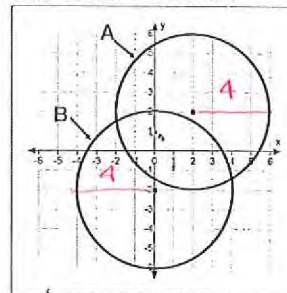
Yes, circle A was dilated by a factor of  $\frac{2}{3}$  and translated down 5 units to create circle B.

#3: Are the two circles similar?



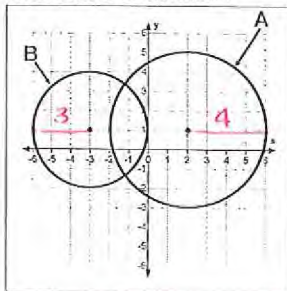
Yes, circle A was dilated by a SF of  $\frac{3}{2}$ , translated right 7 units + down 4 units to create circle B.

#4: Are the two circles similar?



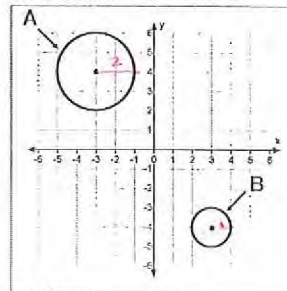
Yes, circle A was dilated by a SF of 1, translated down 4 units + left 2 units to create circle B.

#5: Are the two circles similar?



Yes, circle A was dilated by a factor of  $\frac{3}{4}$ , translated 5 units left to create circle B.

#6: Are the two circles similar?



Yes, circle A was dilated by a SF of  $\frac{1}{2}$  + translated right 10 units + down 8 units to create circle B.