

3-53. See below.

- a. Yes, since all trees are green and the oak is a tree.
- b. No, only *trees* must be green according to the statement.
- c. No, the second statement reverses the first.

3-54. See below.

- a. Yes, AA ~. Dilate from right vertex.
- b. Yes, AA ~ since all angles are 60° . Translation and dilation.
- c. Yes, zoom factor of 2.5; translate so that one pair of corresponding vertices coincide, rotate so that rays coincide, and dilate.
- d. No, since corresponding angles are not equal. Note that you can't apply zoom factor to angles.

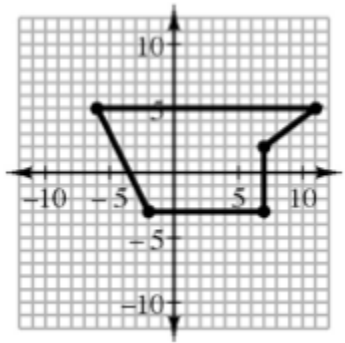
3-55. See below.

- a. One strategy: Translate one so that the centers coincide. Then dilate so that the radius is the same as the other circle.
- b. Students may come up with equilateral triangles, which from part (b) of problem 3-54 were similar because they have equal angle measures. Squares or other regular polygons are also always similar.

3-56. See below.

- a. There are 12 combinations. One way to systematically list them all is to list a bus number (such as 41) and then match it with each possible activity. This can be repeated for each of the possible bus numbers.
- b. i. $\frac{9}{12}$, ii. $\frac{8}{12}$, iii. $\frac{1}{12}$
- c. No, each activity is equally likely regardless of which bus she takes.

3-57. See graph below. Perimeter = 44.9 units; Area = 94 square units



3-58. See below.

- a. $ABCD \sim EVOL$
- b. $RIGHT \sim RONGW$
- c. One possible answer: $\triangle TAC \sim \triangle GDO$