

1. Use the right triangles to the right to determine each of the following;

a) Perimeter.

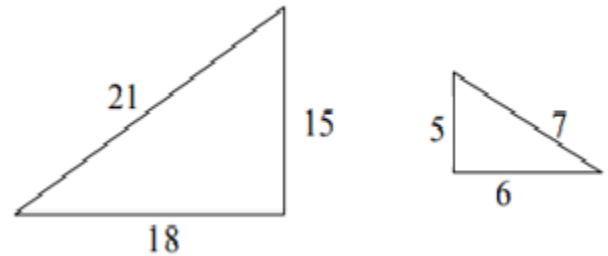
b) Area

c) Scale Factor

d) Perimeter Ratio

e) Area ratio

f) How does the scale factor compare to the perimeter ratio and the area ratio?



2. A damsel is in distress and is being held captive in a tower. Her knight in shining armor is on the ground below with a ladder. When the knight stands 15 feet from the base of the tower and looks up at his precious damsel, the angle of elevation to her window is 60 degrees. How long does the ladder have to be?

3. The height of a building is 250 ft. What is the angle of elevation from a point on the level ground 200 ft. away from the base of the building?

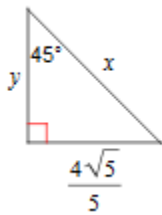
4. A cliff is 80 feet above the sea. From the cliff the angle of depression to a boat is 35°. How far is the boat from the base of the cliff?

5. A 96 foot tree casts a shadow that is 120 feet long. What is the angle of elevation of the sun?

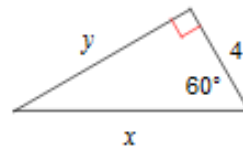
6. You are a block away from a skyscraper that is 750 ft. Tall. Your friend is between you and the skyscraper. The angle of elevation from your position to the top of the skyscraper is 42° and your friend's is 71° . How far are you from your friend?

Determine the missing side lengths. Leave your answer in simplest Radical for when necessary.

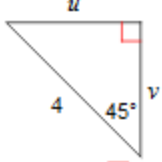
7)



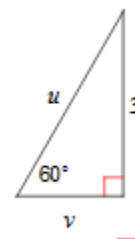
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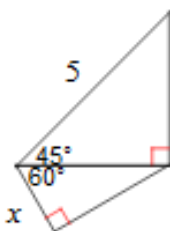
9)



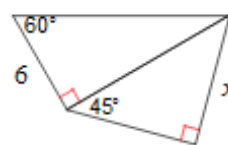
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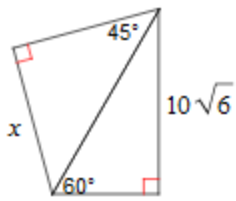
11)



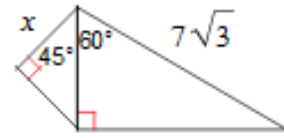
12)



13)

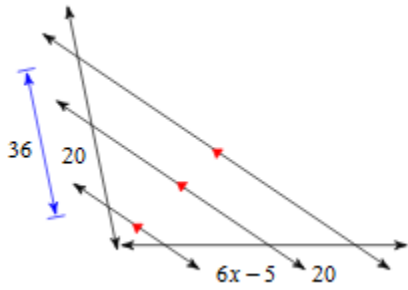


14)

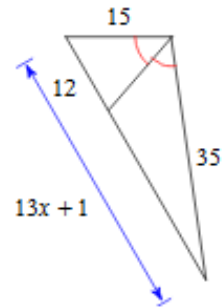


Determine the unknowns.

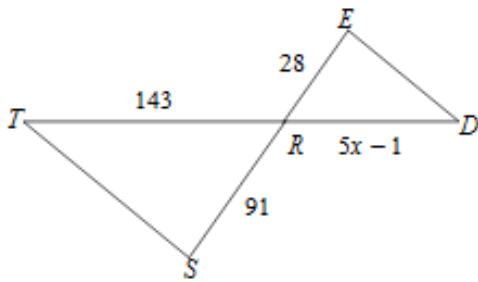
15)



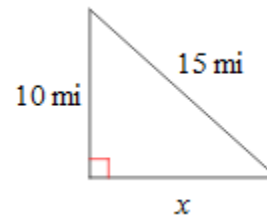
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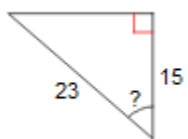
17)



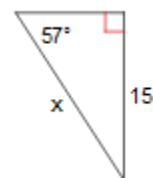
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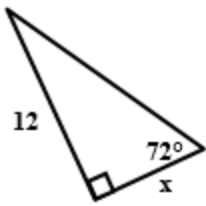
19)



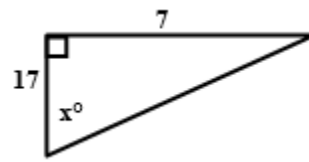
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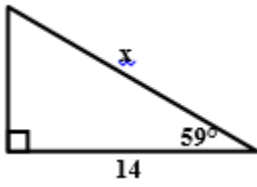
21)



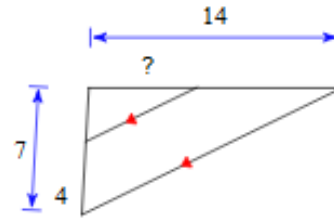
22)



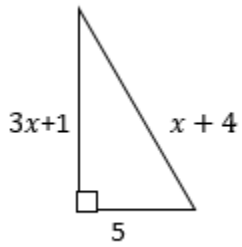
23)



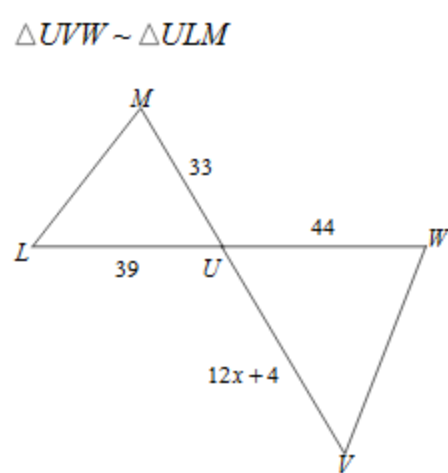
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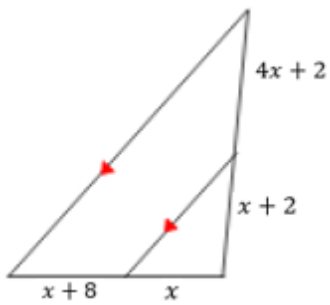
25)



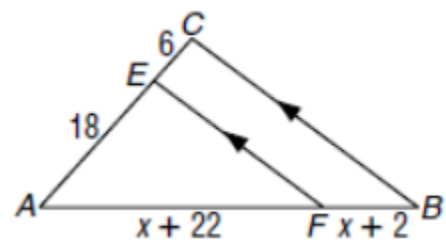
26)



27)

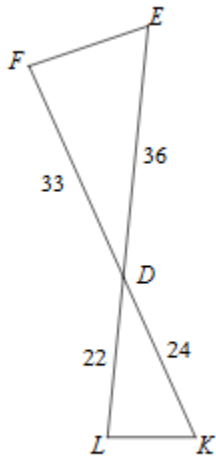


28)



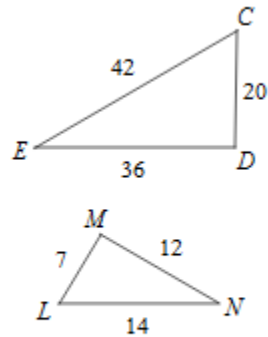
State if the triangles in each pair are similar. If so, state how you know they are similar and complete the similarity statement.

29)



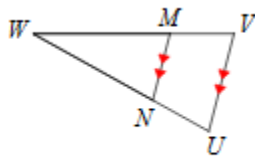
$\triangle DEF \sim$ _____

30)



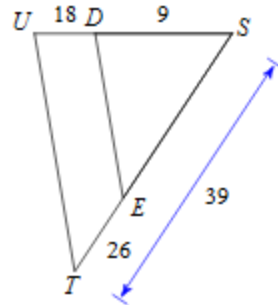
$\triangle CDE \sim$ _____

31)



$\triangle WVU \sim$ _____

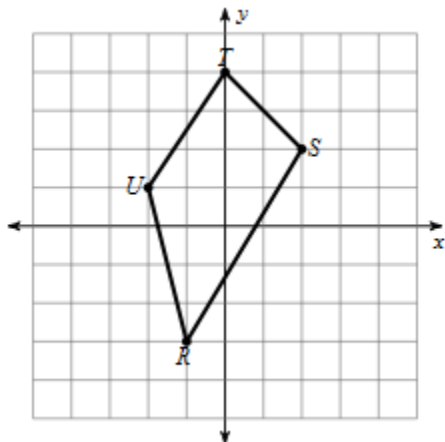
32)



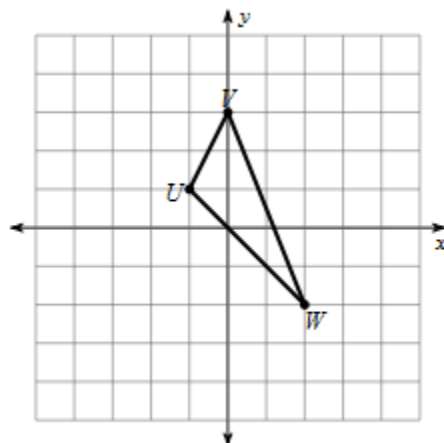
$\triangle STU \sim$ _____

Graph the image of the figure using the transformation given.

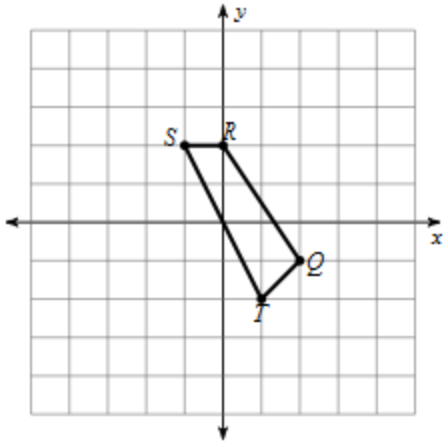
33) dilation of $\frac{1}{2}$ about the origin



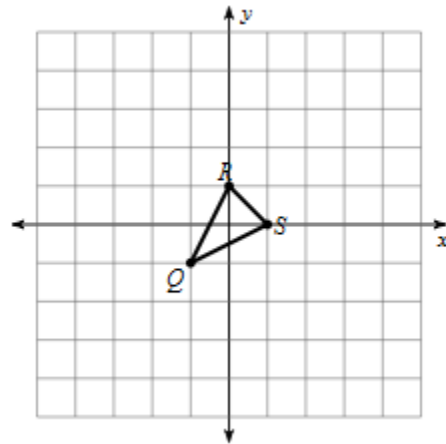
34) dilation of _____ about the origin



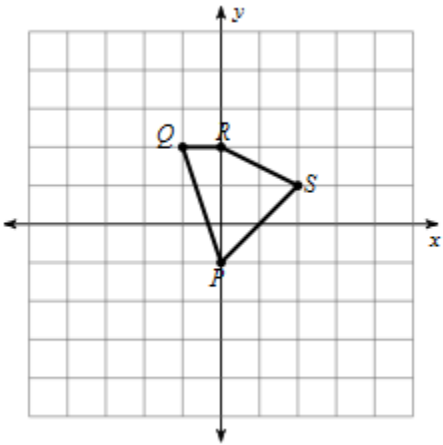
35) dilation of 2 about the $(-1, -1)$



36) dilation of 3 about the $(0, 2)$

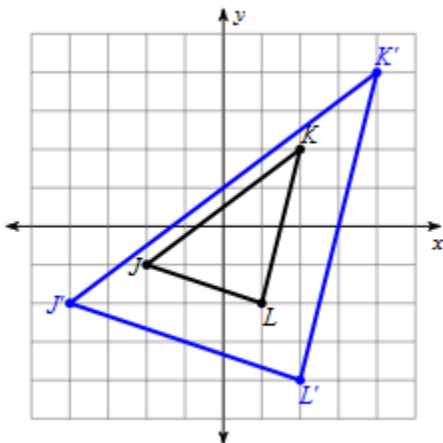


37) dilation of $\frac{1}{3}$ about the $(-4, -2)$



Write a rule to describe each dilation.

38) _____



39) _____

