Shadows Test

Good Luck to _____ Period_____ Date _____

Part A

Identify each statement as true or false. *(10 points)*

1. If the three sides of one triangle are proportional to the three corresponding sides of another triangle, then the two triangles are congruent.
2. If a line passes through two sides of a triangle dividing them equally, then the line is parallel to the third side.
3. If all the sides of one polygon are proportional to all the corresponding sides of another polygon, then the two polygons are similar..
4. If two triangles are similar, then the corresponding altitudes are proportional to the corresponding sides.
5. If two angles of one triangle are proportional to the two corresponding angles of another triangle, then the two triangles are similar.

Part B *(25 points)*

Solve each problem. In Problems 1–3, solve for *x*. In Problems 4–5, determine if the triangles are similar.

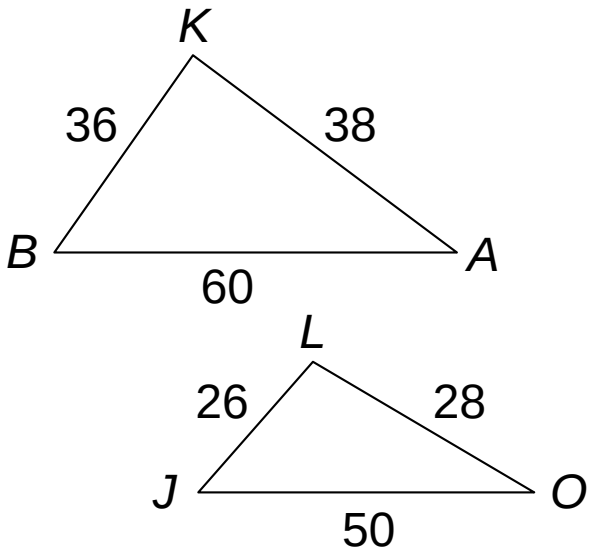
1. $\frac{x}{25} = \frac{4}{5}$

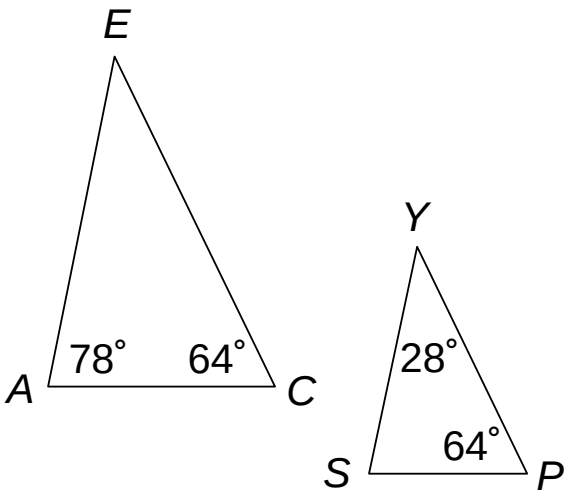
2. $\frac{3}{13} = \frac{18}{x}$

3. $\frac{16}{x} = \frac{x}{9}$

4. Is $\Delta BAK \sim \Delta JOL$? (yes/no) = _____

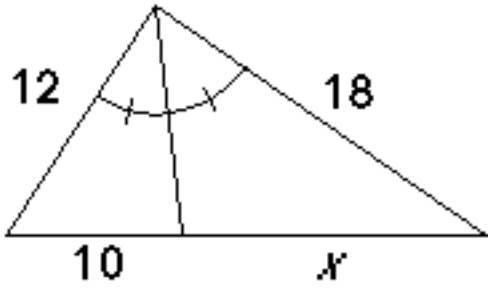
5. Is $\Delta ACE \sim \Delta SPY$? (yes/no) = _____



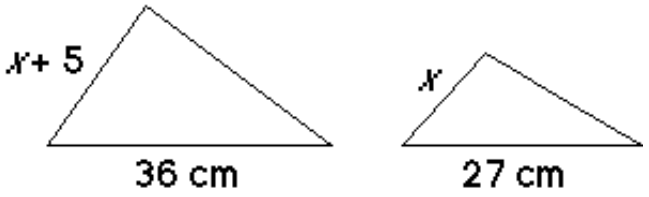


Part C - Find the indicated measurements. *(40 points)*

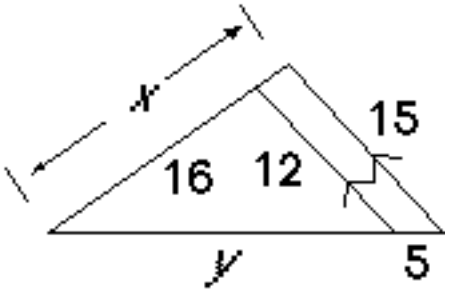
1. Find the length *x*, in the diagram below:



2. The two triangles below are similar. Find *x*:

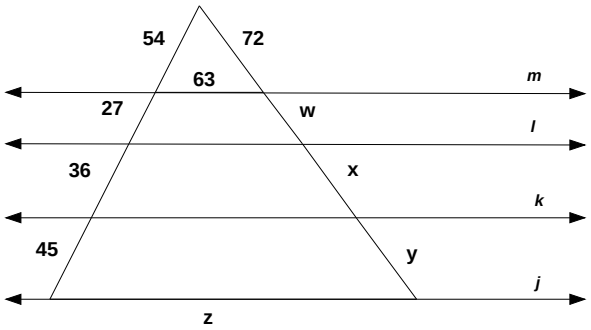


3. Find the lengths *x* and *y*, in the diagram below:



4. In the diagram below, $j \parallel k \parallel l \parallel m$.

Find *w*, *x*, *y* and *z*



Part C- Solve each word problem. *(25 points)*

1. There is a tower of cubes 9 inches tall, placed on a table. You are shining a flashlight at the tower, and the flashlight is mounted on a stand so that it is 24 inches above the tabletop. The distance from the bottom of the tower to the spot on the table directly below the flashlight is 17 inches. How long is the shadow cast by the tower?
2. If a 36-foot tree casts a 28-foot shadow at the same time that a nearby building casts a 70-foot shadow, how tall is the building?
3. Samantha positioned a mirror on the ground between herself and a nearby building in such a way that when she looked into the mirror while standing upright, she saw into a window. If the mirror was 48 **inches** from her feet and 28 **feet** from the base of the building, how high up on the building was the window located?
4. A recipe for 5 dozen cookies calls for ¾ cups of shortening. How many cups of shortening are needed to make 8 dozen cookies?
5. On their recent trip to the planet Pluto, Mr. Levy weighed himself and his cat, Firecracker. On Pluto, Firecracker weighed 9.5 lb. and Mr. Levy weighed 145 lb. When they returned home, Firecracker weighed 12 lb. How much does Mr. Levy weigh?