

Math 4. Classwork #17



Review of Homework: # 15

$$10x - (20y - 10x) - (y - x)(25 - 5) =$$

$$|60 - x| = 40$$

The knight always tells the truth, the knave always lies. Two people, Red and Blue, stand before you. Red says, "We are both knaves." What are they really?

Hint: Is Red a knight?

Solution:

The Red cannot be a knight. Knights always tell the truth, so if he were a knight, he would tell you so. Instead he says, "we are both knaves."

If the Red is a knave, then he must be a liar. This means they cannot both be knaves. So, since we've established that Red man is a knave and a liar, Blue must be a knight.

Solving the percent problems with the proportion method:

Remember: **Percent (%) of Whole is "part" or "Part" is percent (%) of Whole**

100% is 1 (all of it)

Can "part" be larger than the whole?

Greater than 100% means more than all of it.

Less than 100% means less than all of it.

$$\frac{\text{Part (is)}}{\text{Whole (of)}} = \frac{\text{percent}}{100}$$

- 5.1 is what percent of 60?

$$\frac{5.1}{60} = \frac{x}{100}$$

- 30 is 25% of what number?

$$\frac{30}{x} = \frac{25}{100}$$

- What number is 13.4% of 17?

$$\frac{x}{17} = \frac{13.4}{100}$$

1. There are 40 students in the class and 25 of them are girls. Find the ratio of the number of boys to the number of girls in the class.
2. The ratio of the length of wire A to the length of wire B is 7:4. Find the length of wire B if wire A is 21 meters long.
3. Yana and Julia shared \$35 at the ratio of 4:3. How much money did Yana receive?
4. The ratio of the weight of Box A to the weight of Box B is 5:3. Find the total weight of both Boxes if the weight of Box A is 40 kg.



$$A : B = 5 : 3$$

Geometry:

Figures in the plane can be rotated (turned), translated (slide) and reflected (flipped)

Rigid Motion: Any way of moving all the points in the plane such that

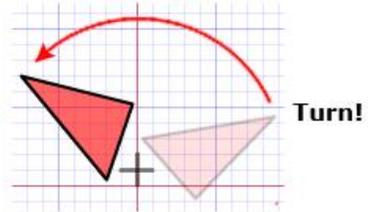
- the relative distance between points stays the same and
- the relative position of the points stays the same.

Four types of Rigid Motion: Turns, Flips, Slide or Glide Reflection

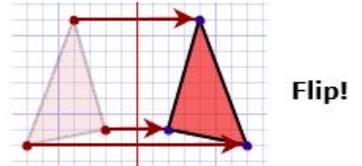
If one shape can become another using Rigid Motion, then the shapes are **Congruent** (symbol: \cong).

Congruent figures are figures that have exact same corresponding side lengths and angle measures

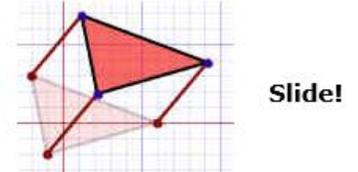
Rotation



Reflection

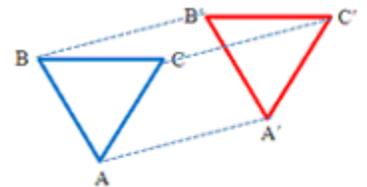


Translation



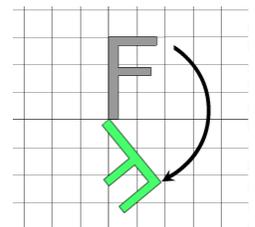
Translation:

In a translation, everything is moved by the same amount and in the same direction. Every translation has a direction and a distance.



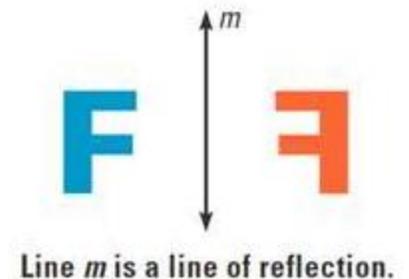
Rotation:

A rotation fixes one point and everything rotates by the same amount around that point. Every rotation has a rotocenter and an angle.



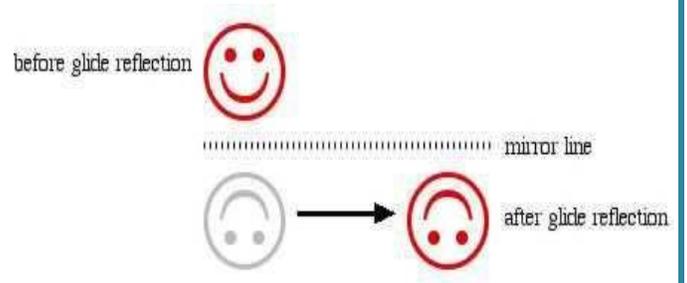
Reflection:

The image of each point is at the same distance from the mirror line as each point of the pre-image



Glide Reflection:

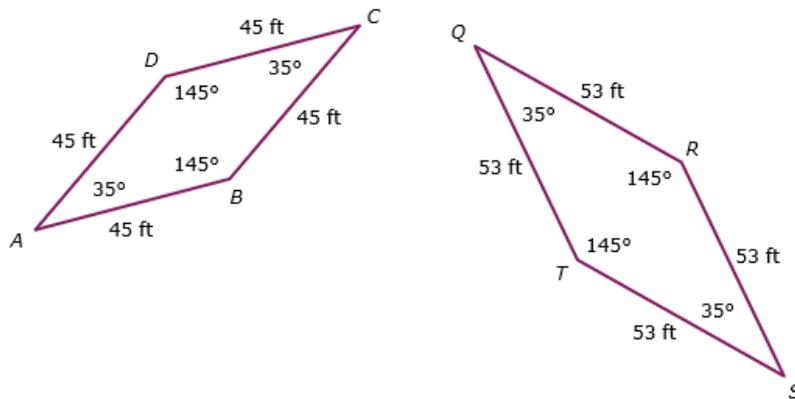
A glide reflection is a mirror reflection followed by a translation parallel to the mirror. Every glide reflection has a mirror line and translation distance.



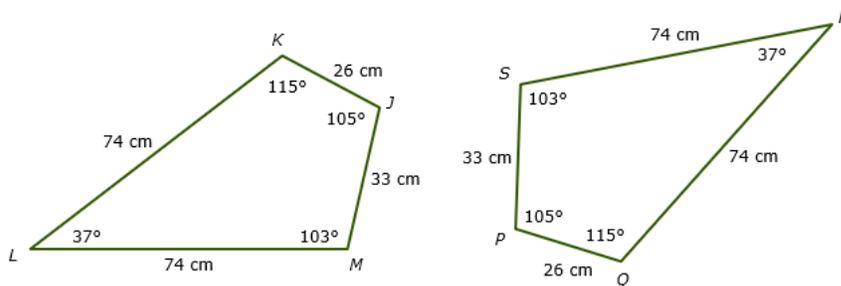
Shapes are similar if their corresponding angles are all congruent and their corresponding sides are proportional.

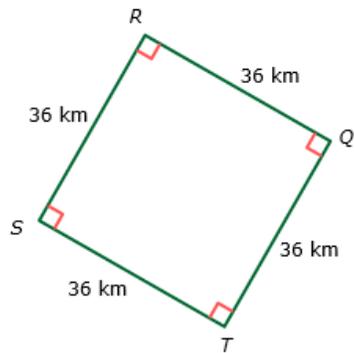
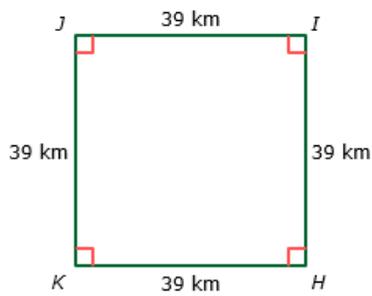
In geometry, similarity is a most important concept regarding triangles. Two triangles are said to be similar when they have same shape, but can have different size. Similar triangles have equal corresponding angles and proportional corresponding sides. This proportion is known as similarity ratio.

Are these shapes congruent?



Are these shapes congruent?

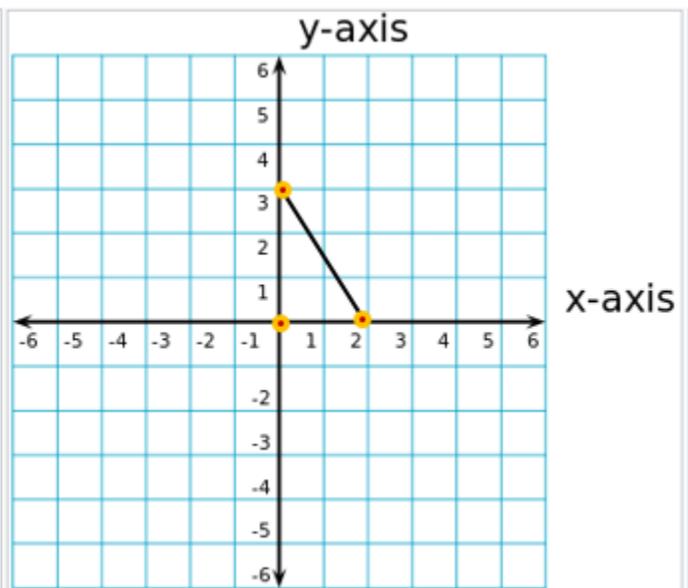
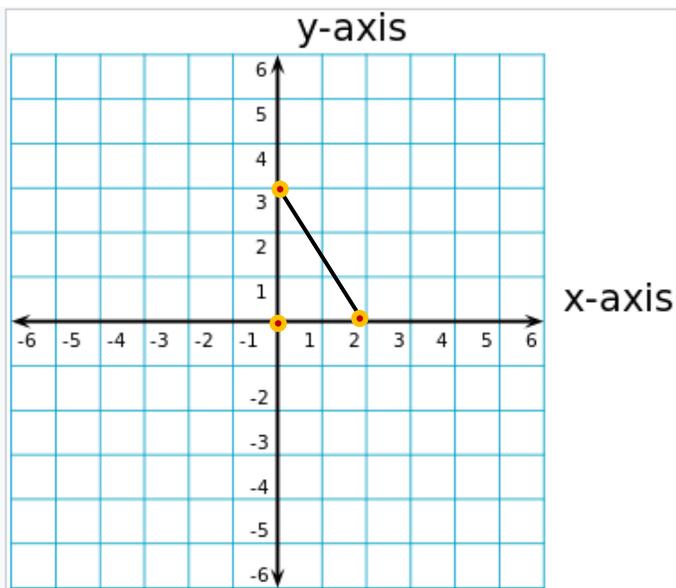




Transform the given pre-image using coordinate notation:

A) $(x, y) \rightarrow (x - 4, y + 3)$

B) $(x, y) \rightarrow (-x, y)$



Which rigid motion is specified by letters?

