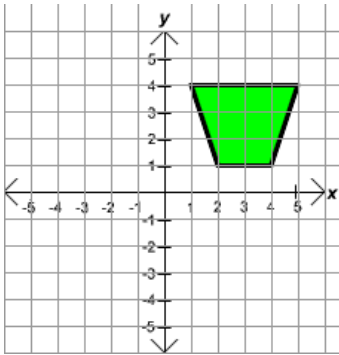Benchmark 1 Review

1. What would the coordinate be for the point (3, -2) after if is reflected over y=x and the translated (x, y)->(x-3,y+1)?

2. If the image coordinate for a rotation of 90 CCW about the origin is G'(-4,7) what is the preimage coordinate?

3. What quadrant the following figure end up in after a rotation of 270° CCW about the origin, then a reflection over x=-1, then translate up 6?

4. How could you map QRST to JKLM if Q(-1,2) R(-1,5) S(4,5) T(4,2) and J(3,-1) K(0,-1) L(0,4), and T(3,4).

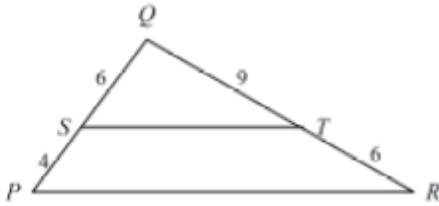5. Determine how EFGH could be mapped onto TRAP.

MathBits.com
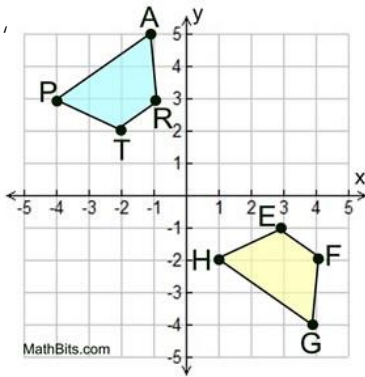
6. Determine if the following triangles are congruent.
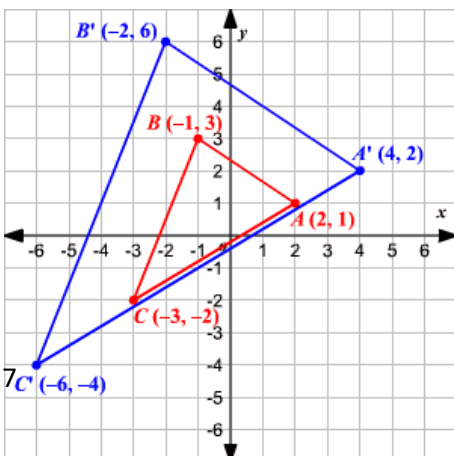
7.

Verify that $\triangle PQR \sim \triangle SQT$.

a. $\angle Q \cong \angle Q$ by the Reflexive Property of Congruence.

$$\frac{QS}{QP} = \frac{QT}{QR} = \frac{3}{5}$$

$\triangle PQR \sim \triangle SQT$ by SAS Similarity.

b. $\angle P \cong \angle QST$ and $\angle R \cong \angle QTS$ by the Corresponding Angles Postulate.
$\triangle PQR \sim \triangle SQT$ by AA Similarity.

c. $\angle P \cong \angle QTS$ and $\angle R \cong \angle QST$ by the Alternate Interior Angles Theorem.
$\triangle PQR \sim \triangle SQT$ by AA Similarity.

d. $\angle Q \cong \angle Q$ by the Reflexive Property of Congruence.

$$\frac{PS}{QP} = \frac{QT}{QR} = \frac{2}{5}$$

$\triangle PQR \sim \triangle SQT$ by SAS Similarity.

8.

A tree is standing next to a 40-foot high building. The tree has an 18-foot shadow, while the building has a 16-foot shadow. How tall is the tree, rounded to the nearest foot?
a. 45 feet
b. 36 feet
c. 42 feet
d. 7 feet

9. Two polygons are similar then their corresponding angles are

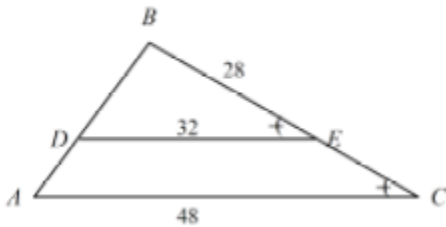A. not equal
B. Equal
C. congruent
D. none of above

10.

As shown on the graph below, $\triangle R'S'T'$ is the image of $\triangle RST$ under a single transformation.
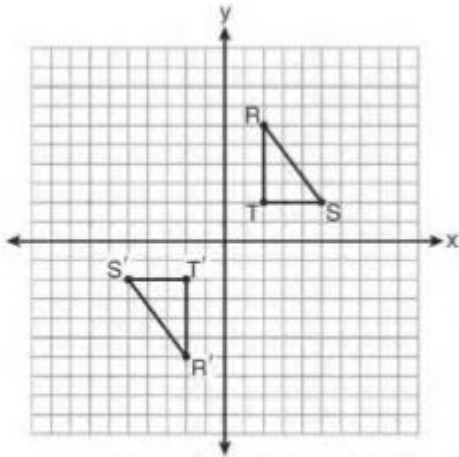

Which transformation does this graph represent?
1) glide reflection
2) line reflection
3) rotation
4) translation

11. Explain why $\triangle ABC \sim \triangle DBE$ and then find BC.

12.

The coordinates of point A are $(-3a, 4b)$. If point A' is the image of point A reflected over the line $y = x$, the coordinates of A' are
1) $(4b, -3a)$
2) $(3a, 4b)$
3) $(-3a, -4b)$
4) $(-4b, -3a)$

13. In the diagram below, $\triangle A'B'C'$ is a transformation of $\triangle ABC$, and $\triangle A''B''C''$ is a transformation of $\triangle A'B'C'$.
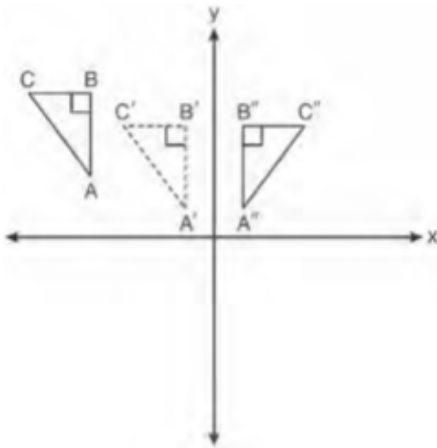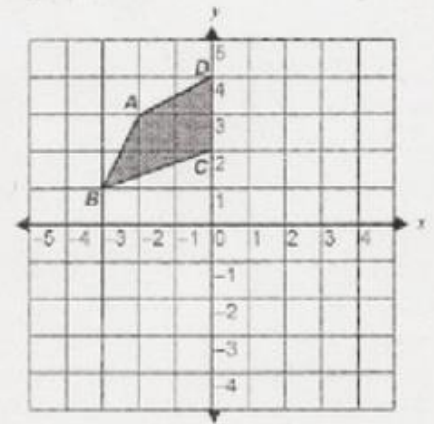

The composite transformation of $\triangle ABC$ to $\triangle A''B''C''$ is an example of a
1) reflection followed by a rotation
2) reflection followed by a translation
3) translation followed by a rotation
4) translation followed by a reflection

14.

If the figure below were reflected across the y-axis, what would be the new coordinates of point A?

A (3,2)

B (2,3)

C (3,1)

D (4,2)

STUDYUNIT 1 VOCABULARY WORDS

Angle – A figure formed by two rays with a common endpoint.

Circle – The set of points in a plane that are a fixed distance from a given point called the center of the circle.

Perpendicular lines – Lines that intersect at 90 degree angles.

Parallel Line – Lines in the same plane that do not intersect.

Line Segment – A straight line which links two points without extending beyond them.

Point –A specific location in space, often represented by a dot.

Line – A straight pathway that is endless in both directions, has no thickness, and is comprised of points.

Ray – A part of a line that starts at endpoint and extends forever in one direction.

Image - The figure after a transformation has occured.

Transformation - a change in the position, size, or shape of a figure. A transformation maps the preimage to the image.

Rigid Motion - A transformation of the plane or space, which preserves distance and angles. (AKA Isometry)

Translation - a transformation in which all the points of a figure move the same distance in the same direction.

Rotation - A transformation about a point P, such that each point and its image are the same distance from P.

Reflection - A transformation across a line, called the line of reflection. Each point and its image are the same distance from the line of reflection.

Dilation - A transformation that changes the size of a figure but not its shape.