## Benchmark 3 Review

1. What would the coordinate be for the point $(3,-2)$ after if is reflected over $\mathrm{y}=\mathrm{x}$ and the translated $(x, y)->(x-3, y+1)$ ?
2. If the image coordinate for a rotation of 90 CCW about the origin is $\mathrm{G}^{\prime}(-4,7)$ what is the preimage coordinate?
3. What quadrant the following figure end up in after a rotation of $270^{\circ}$ 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.

6. Determine if the following triangles are congruent.

7. Determine if the two triangles are simlar. Provide evidence as to why or why not.

8. A tree is standing next tot a 40 ft . high building.

The tree has an 18 ft . shadow, while the buiding has a 16 ft . shadow. How tall is the tree to the nearest foot?
9. Two polygons are similar then their corresponding angles are $\qquad$ and their corresponding sides are $\qquad$ -.
A. not equal, proportional
B. Equal, congruent
C. Congruent, proportional.
D. none of above
10. Dilate the following figure with a center at $(-1,2)$ and scale factor of $1 / 2$.

11. Identify the scale factor and center of dilation in the following diagram

12. Which transformaitons are rigid motions, and why do they preserve congruence in shapes?
14. Name all proportional sides and congruent angles
if $\triangle N O T \sim \triangle F L Y$.
15. What is the value of $x$ in the following diagram?

16. What angles must to be supplementary to angle $h$ ?

Use this image for 16 and 17

17. Prove angle $h$ is supplementary to angle $f$.

Are the following triangles congruent? State how you know.
18.

19.

20. If $\triangle F Y E$ is isosceles and one base angle is $25^{\circ}$ what is the measure of the non-base angle?
24.

25. In \#23's parallelogram, what is the relationship between $\angle U W X$ and $\angle W U V$ ?
26. What is the length of the shortest side of the following right triangle?

27. A right triangle has legs of 10 in . and 17.32 in . What is the measure of the larger angle?
28. In $\triangle D A B$, the $\sin (D)=8 / 10$ what is the $\sin (B) ? \cos (B) ?$
29. What is the arc length of the bolder arc?

30. Find the value of $x$ and $y$.


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.

