


EQ: Why are precise definitions important?


Goals for today:

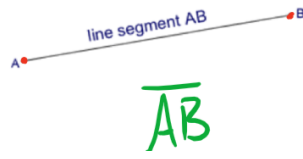
Determine precise definitions



Discuss the importance of precise definitions


Quick review of precise definitions.

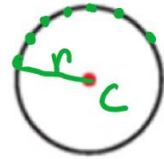

Point – A specific location in space, often represented by a dot 

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

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

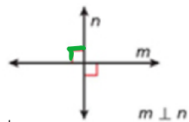
Ray – A part of a line that starts at an endpoint and extends forever in one direction.  

Angle – A figure formed by two rays with a common endpoint called a vertex. $\angle CAB$ or $\angle BAC$ 

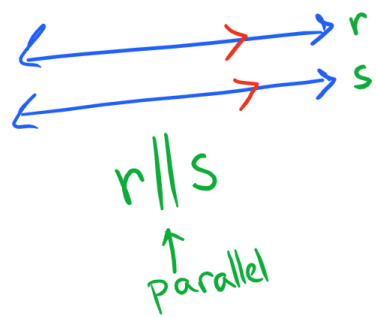
Circle – The set of points in a plane that are a fixed distance from a given point called the center of the circle.  

Perpendicular lines – Lines that intersect at 90 degree angles.

$m \perp n$
↑
Perpendicular



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



line

Why is it wrong?

A straight pathway that is endless in both directions, has ~~thickness of quantity 1~~ **no thickness**

Circle

A set of points in a plane that form a round figure.

that are a fixed distance from a given point.

line segment

A straight line with points at both ends

which links two points w/o extending beyond them.

parallel lines

Two lines in one plane that extend on forever.

do not intersect

Perpendicular lines.

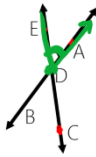
Lines that intersect at a specific point.

90° angles.

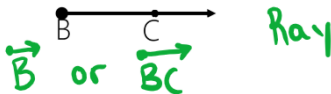
Definitions Extended

1. Write 2 names for the marked angle.

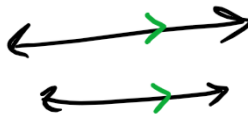
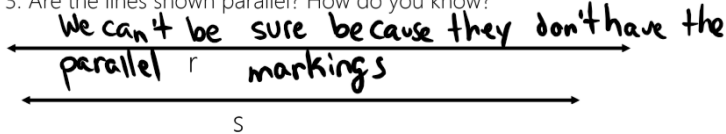
∠EDA
∠ADE



2. Identify and give it a name.



3. Are the lines shown parallel? How do you know?



Acute Angle - angles with a measure $0^\circ < \theta < 90^\circ$ **used to represent theta θ an angle**



Right Angle - angles with a measure $\theta = 90^\circ$



Obtuse Angle - angles with a measure $90^\circ < \theta < 180^\circ$

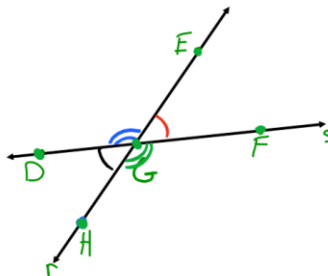


Straight Angle - angles with a measure $\theta = 180^\circ$



Using the given figure, name an angle that matches the type given.

- Acute Angle
∠DGH
∠EGF
- Obtuse Angle
∠DGE
∠FGH
- Straight Angle
∠HGE
∠DGF



Transformations: Vocabulary

Pre-image - The original figure prior to a transformation.

Image - The figure after a transformation has occurred.

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

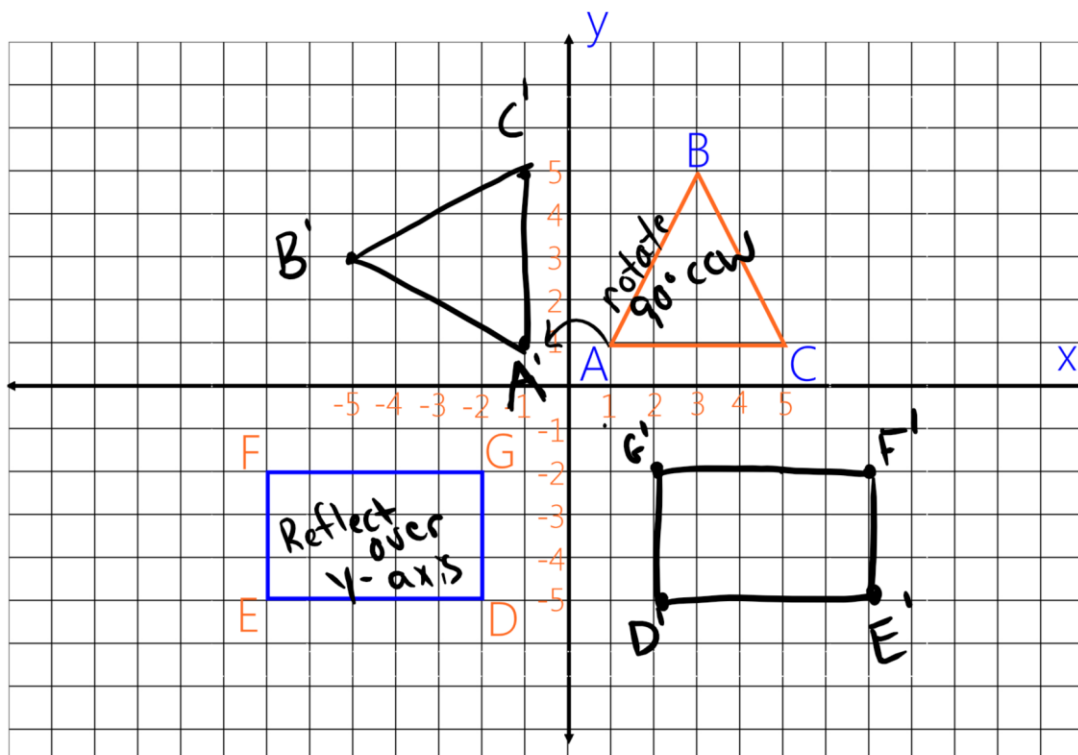
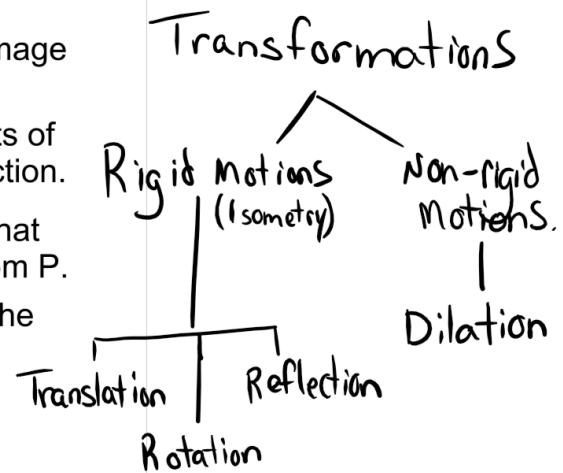
Translation - a transformation in which all the points of a figure move the same distance in the same direction.

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.

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



TRANSLATION → SLIDE

$$(x,y) \rightarrow (x+h, y) = \text{Right}$$

$$(x,y) \rightarrow (x-h, y) = \text{Left}$$

$$(x,y) \rightarrow (x, y+k) = \text{Up}$$

$$(x,y) \rightarrow (x, y-k) = \text{Down}$$

REFLECTION → FLIP

$$(x,y) \rightarrow (x, -y) = \text{Reflect over x-axis}$$

$$(x,y) \rightarrow (-x, y) = \text{Reflect over y-axis}$$

$$(x,y) \rightarrow (y, x) = \text{Reflect over } y=x$$

$$(x,y) \rightarrow (-y, -x) = \text{Reflect over } y=-x$$

ROTATION → TURN

$$(x,y) \rightarrow (-y, x) = \text{Rotate } 90 \text{ CCW}$$

$$(x,y) \rightarrow (-x, -y) = \text{Rotate } 180 \text{ CCW}$$

$$(x,y) \rightarrow (y, -x) = \text{Rotate } 270 \text{ CCW}$$

Example

$$T_{h,0}(1,3) \rightarrow (1+h, 3)$$

$$T_{-h,0}(1,3) \rightarrow (1-h, 3)$$

$$T_{0,k}(1,3) \rightarrow (1, 3+k)$$

$$T_{0,-k}(1,3) \rightarrow (1, 3-k)$$

$$r_{x\text{-axis}}(1,3) \rightarrow (1, -3)$$

$$r_{y\text{-axis}}(1,3) \rightarrow (-1, 3)$$

$$r_{y=x}(1,3) \rightarrow (3, 1)$$

$$r_{y=-x}(1,3) \rightarrow (-3, -1)$$

$$R_{90 \text{ CCW}}(1,3) \rightarrow (-3, 1)$$

$$R_{180}(1,3) \rightarrow (-1, -3)$$

$$R_{270 \text{ CCW}}(1,3) \rightarrow (3, -1)$$