Grade 8
Unit 7 Vocabulary

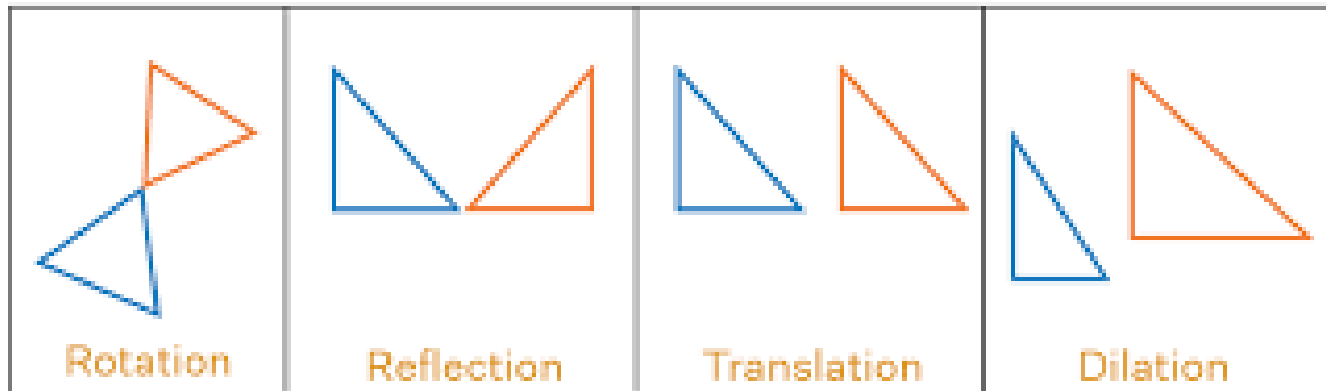## Transformational Geometry

(8.3A, 8.3B, <u>8.3C</u>, 8.10A, 8.10B, <u>8.10C</u>, 8.10D)

# Transformation – Changing a shape using a turn, flip, slide, or resize

A translation, reflection, rotation, or dilation

Transformations in Math

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THE MATH EXPERT

| Rotation | Reflection | Translation | Dilation |

TranSLation – a transformation frequently described as a slide; congruence is maintained, as well as orientation to the original figure

a transformation that slides a figure to new position.
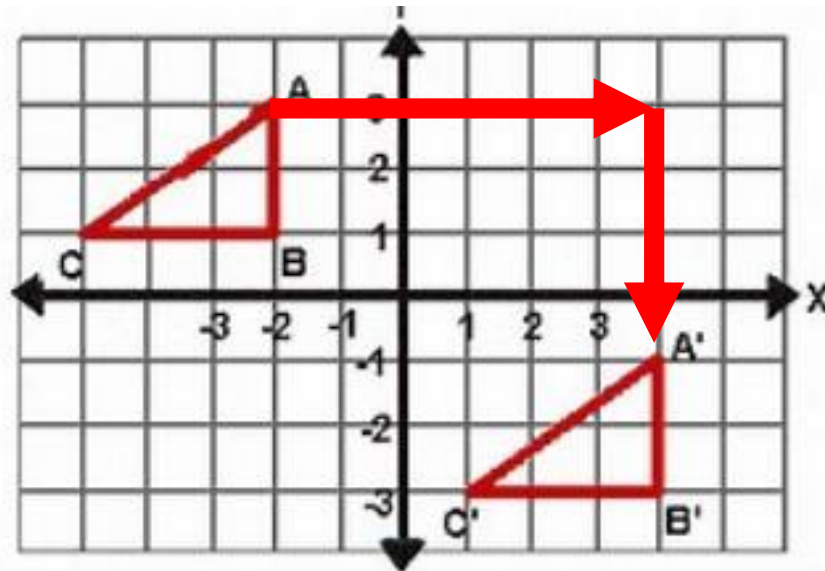
<u>ReFLection</u> – the flip of a figure across a line. Each point and its image are the same distance from the line of reflection.

A <u>flip</u> over a given line of reflection.
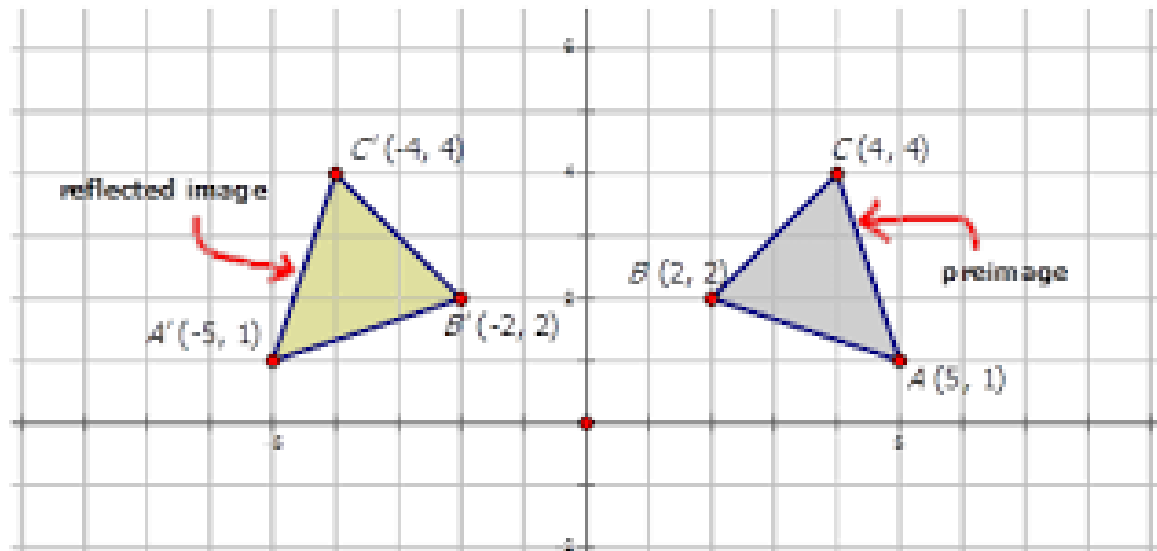
<u>RoTation</u> – a transformation frequently described as a turn; congruence is maintained while orientation is only maintained for rotations of 360º

where a figure is turned around a fixed point.
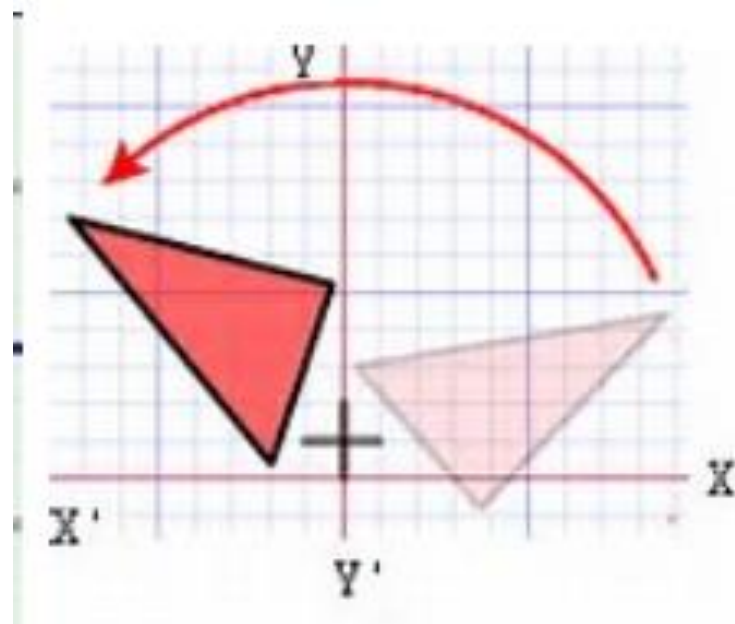
Similar Figures – When two figures have the same shape but their sizes are different. Corresponding sides are proportional and corresponding angles are congruent.
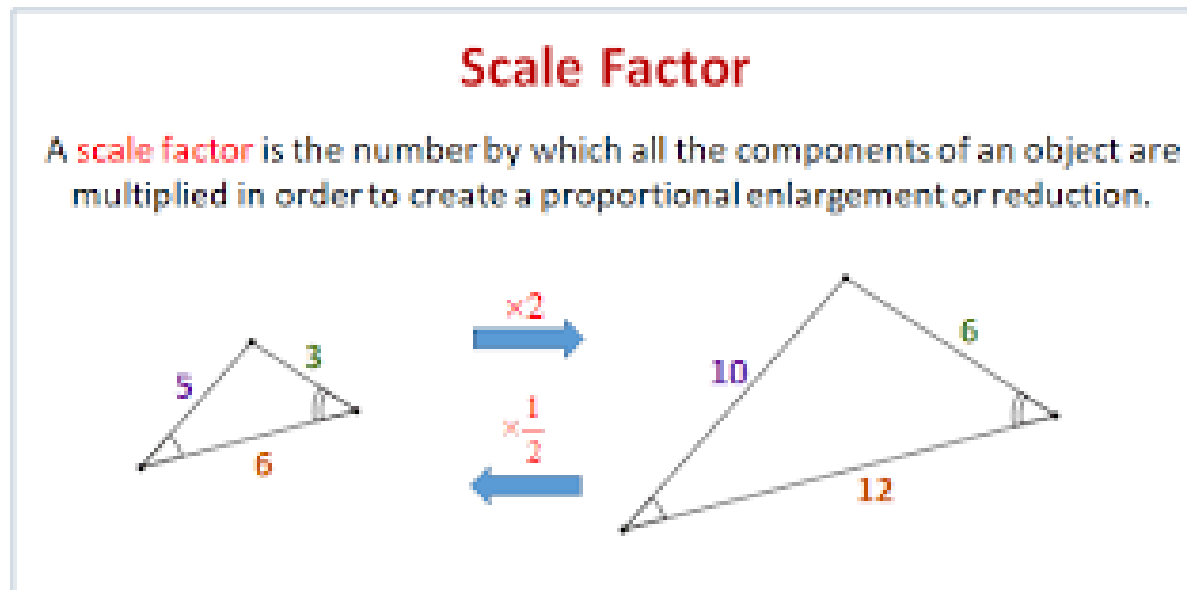
Same Shape but Different Size
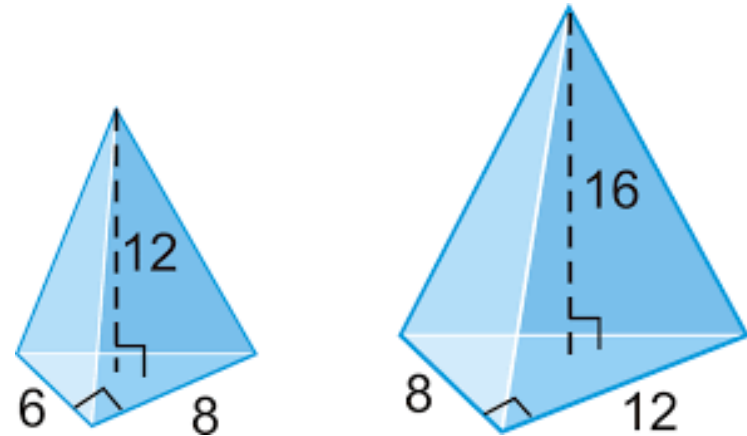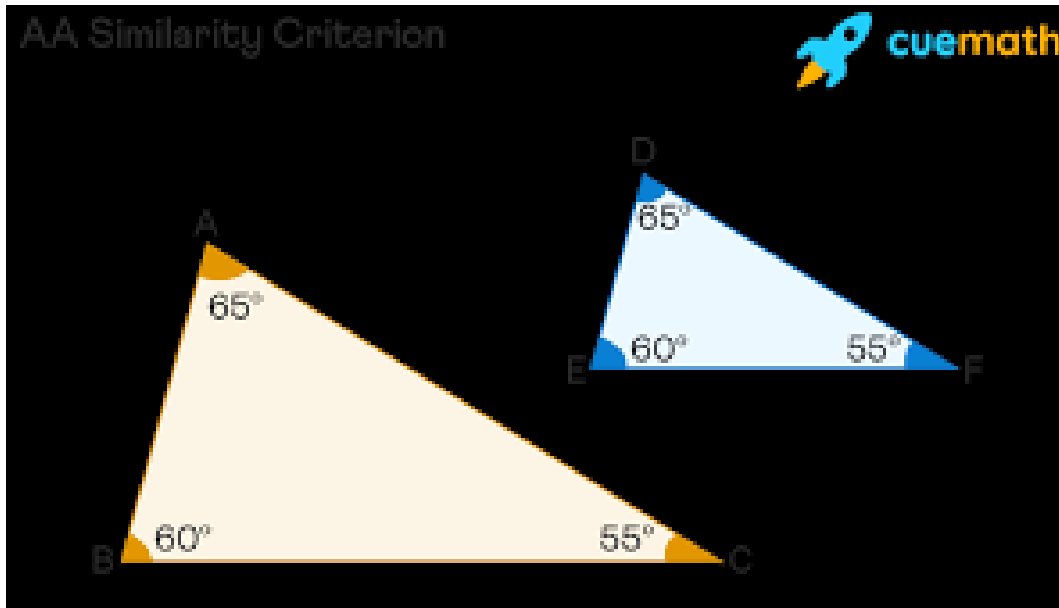
Dilation – a transformation in which an image is enlarged or reduced, depending on the scale factor.

To resize something.

A'(0,4)
B'(4,-2)
C'(-4,-4)

A(0,2)
B(2,-1)
C(-2,-2)

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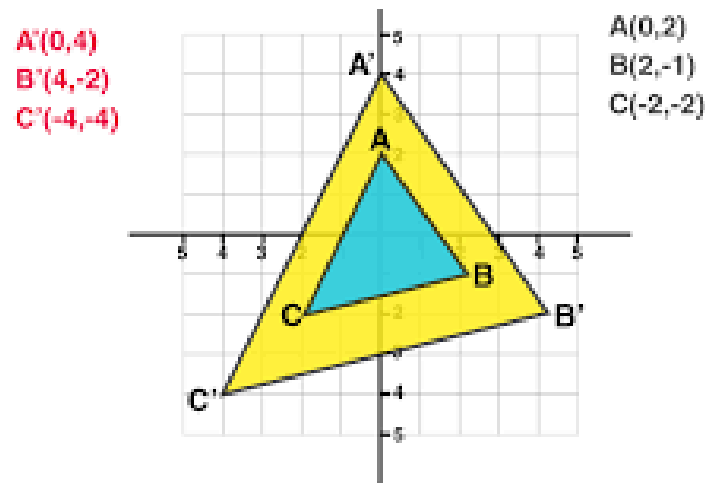
Scale factor – the common multiplicative ratio between pairs of related data which may be represented as a unit rate

The number you multiplied by in a dilation.

Scale Factor

A scale factor is the number by which all the components of an object are multiplied in order to create a proportional enlargement or reduction.

×2

$\times \frac{1}{2}$

5 3 6

10 6 12

Orientation – the angle of an object compared to compass points
or the axes of a coordinate plane.

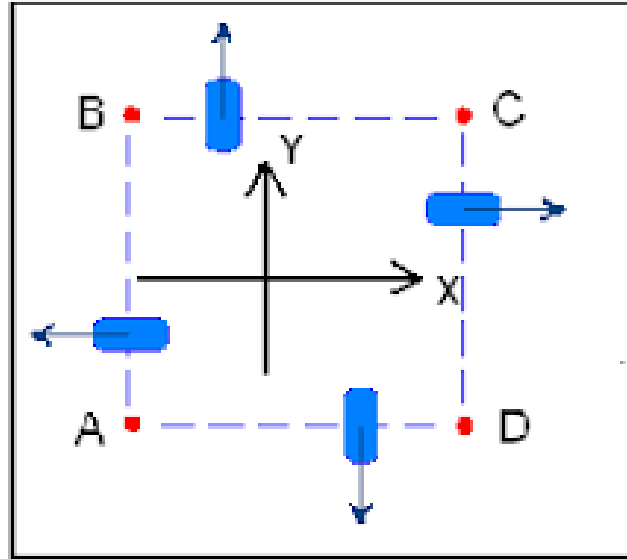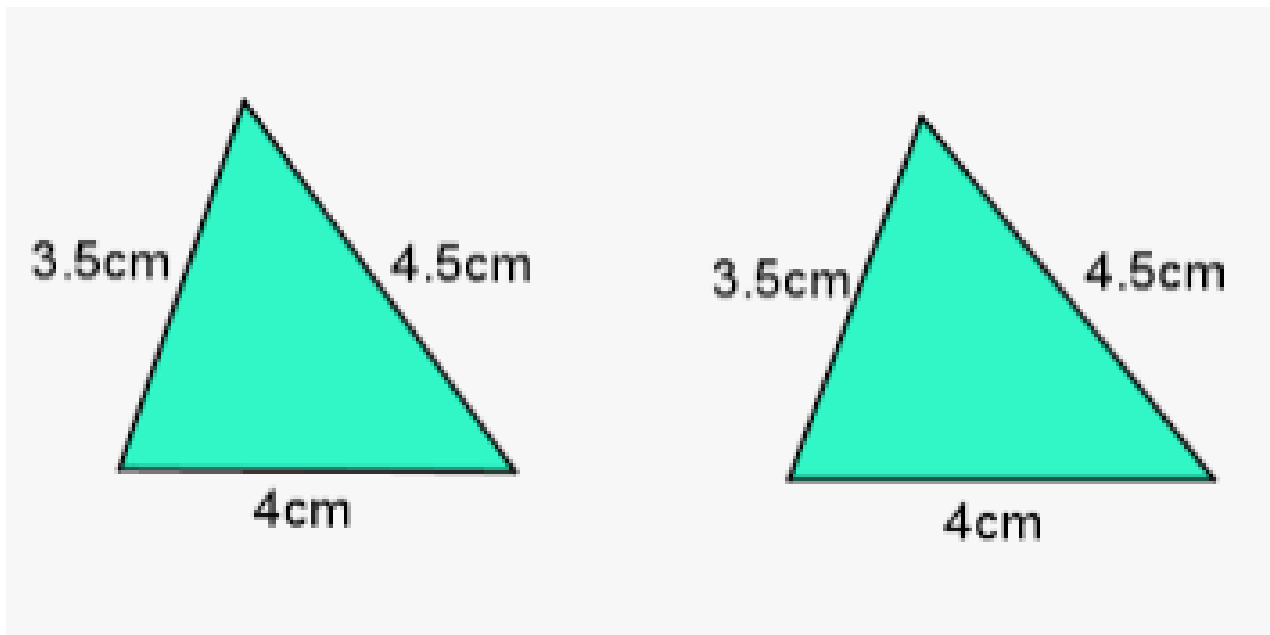The way an object is pointing or angled

Figure 1.3

<u>Congruency</u> – of equal measure, having exactly the same size and same shape

Identical shape and size.

Algebraic Representation – notation to represent a transformation, the rule.

The rule for a transformation

Across x-axis	$(x, y) \longrightarrow (x, -y)$
Across y-axis	$(x, y) \longrightarrow (-x, y)$
Across the line y = x	$(x, y) \longrightarrow (y, x)$
Across the line y = -x	$(x, y) \longrightarrow (-y, -x)$
In origin	$(x, y) \longrightarrow (-x, -y)$