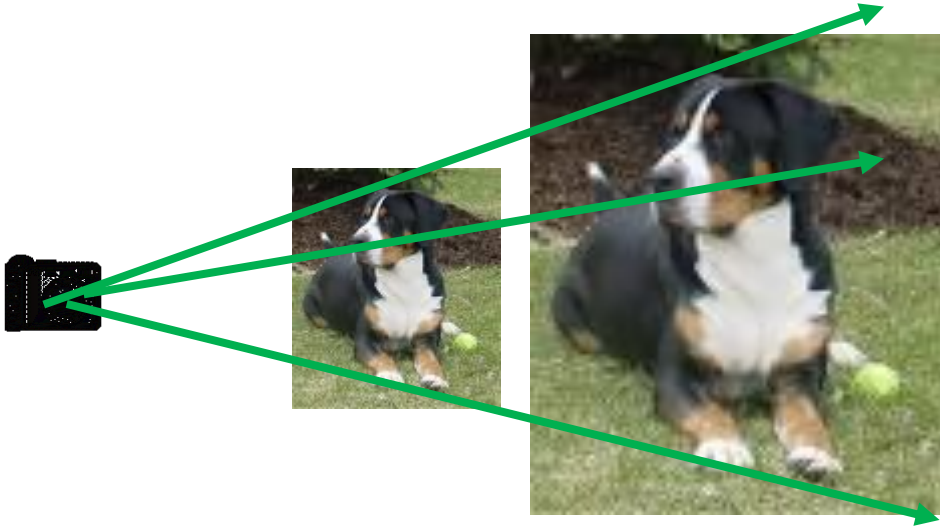


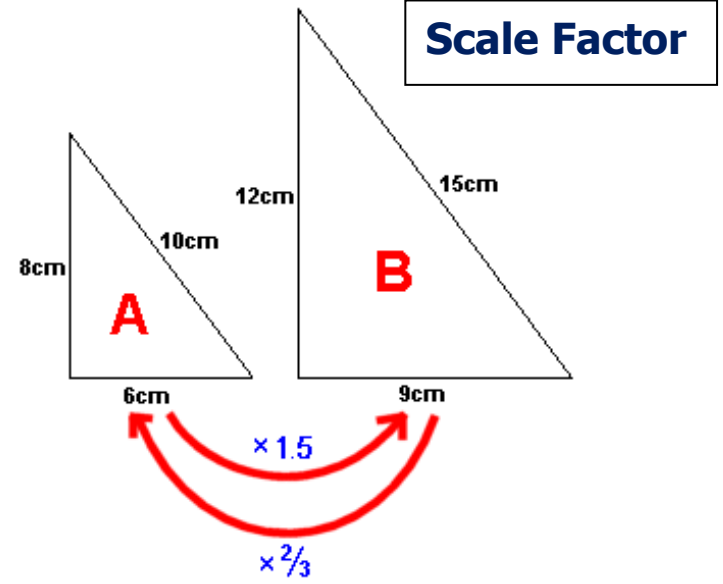
Unit 7



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1

Unit 7



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2

Unit 7

Contraction

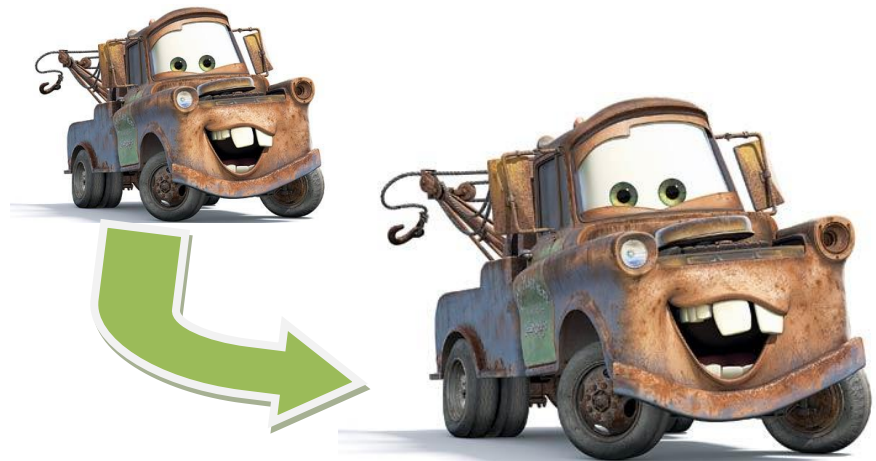


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Unit 7

Expansion



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4

Scale Factor

- The ratio of two corresponding lengths

Dilation

- Transformation that is not rigid
- Same shape, different size

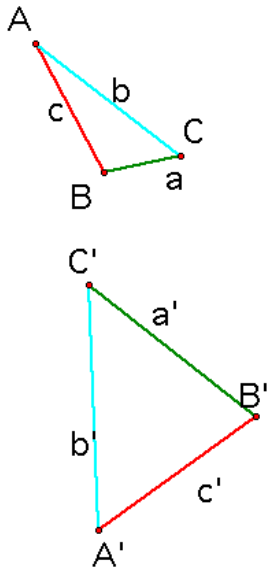
Expansion

- A dilation with a scale factor greater than 1

Contraction

- A dilation with a scale factor of less than 1 but greater than 0

Unit 7



$m\angle ACB = 49.57^\circ$ Angle
 $m\angle A'C'B' = 49.57^\circ$

$\frac{m b'}{m b} = 1.33$ Side

$\frac{m c'}{m c} = 1.33$ Side

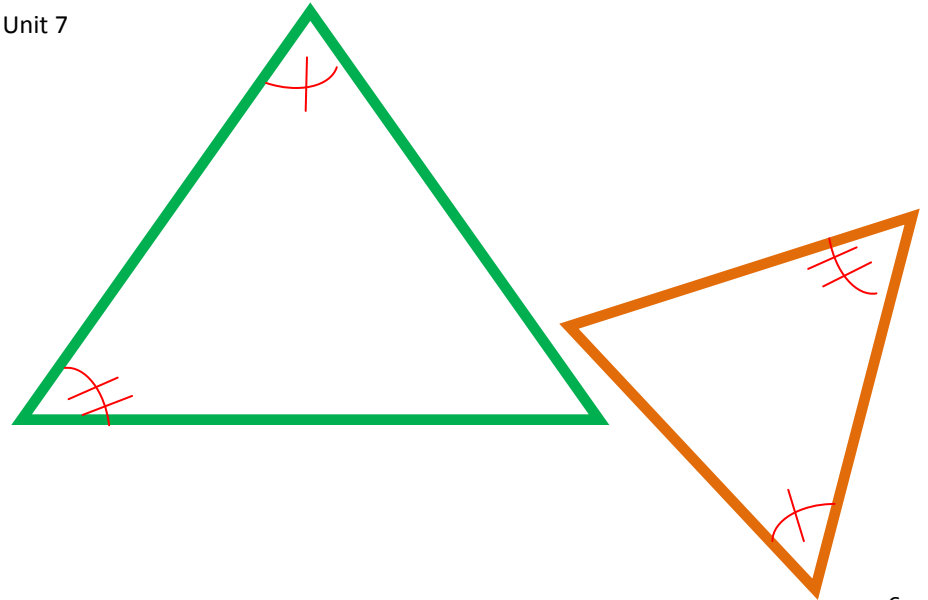
$\frac{m a'}{m a} = 2.71$

Similarity

5

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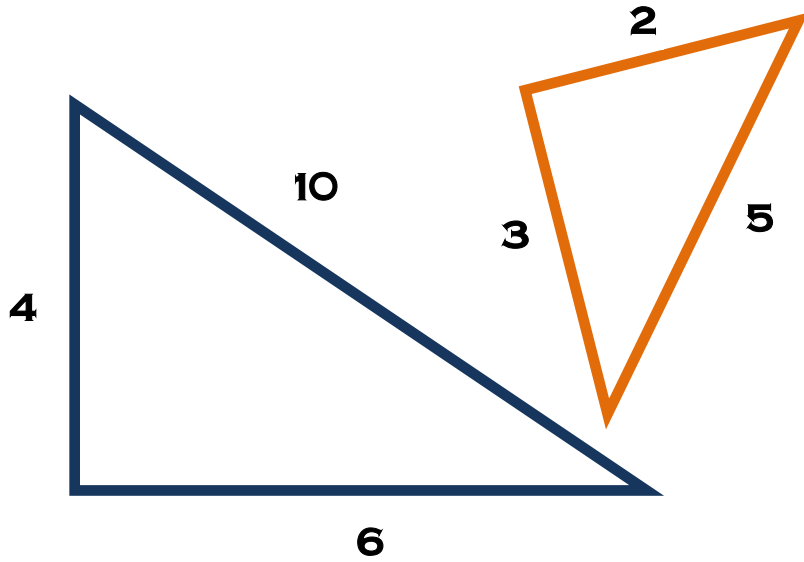
Unit 7



6

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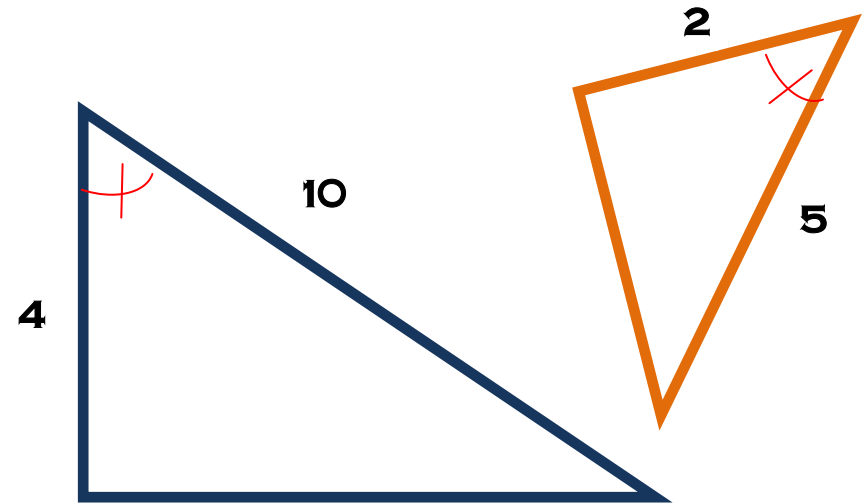
Unit 7



7

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Unit 7



8

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AA \sim

- If two *corresponding angles* of one triangle are congruent to two *corresponding angles* of another triangle then the **triangles are similar**.

Similarity

- Each pair of corresponding angles are congruent
- Each pair of corresponding sides are proportional

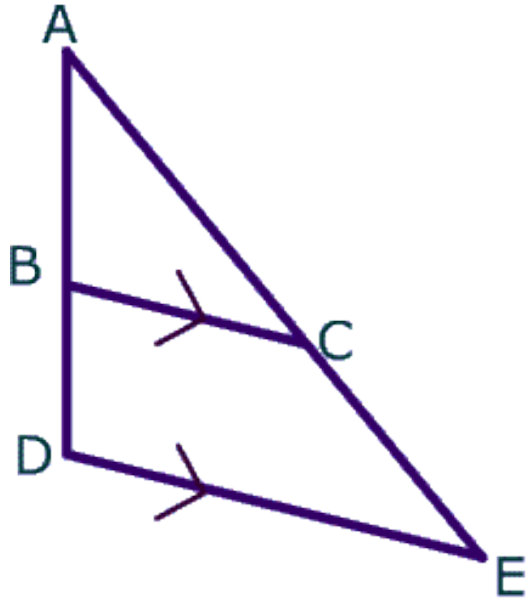
SAS \sim

- If *two sides* of a triangle are *proportional* to *two sides* of another triangle and the *included angle* of that triangle is congruent to the *included angle* of the other triangle, then the **triangles are similar**.

SSS \sim

- If the *corresponding sides* of one triangle are *proportional* to the *corresponding sides* of another triangle then the **triangles are similar**.

Unit 7

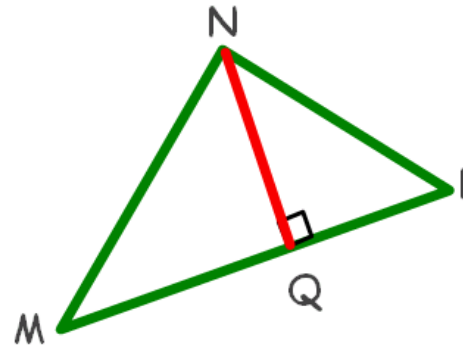


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Unit 7

$$\triangle MNP \sim \triangle ABC$$

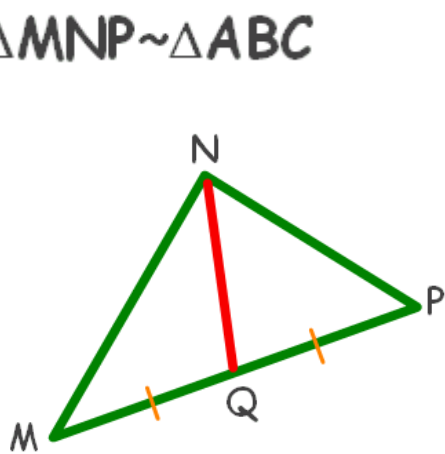


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10

Unit 7

$$\triangle MNP \sim \triangle ABC$$

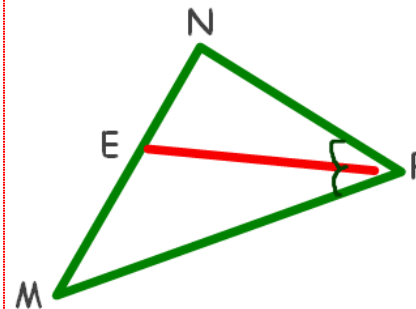


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11

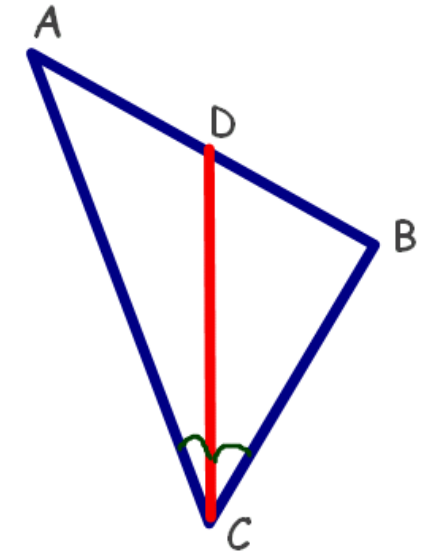
Unit 7

$$\triangle MNP \sim \triangle ABC$$



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Proportional Altitudes

If two triangles are *similar* then their *altitudes have the same ratio* as their corresponding sides.

10

Side Splitter

A line **parallel** to one side of the triangle divides the other two sides proportionally.

9

Proportional Angle Bisectors

If two triangles are *similar* then their *angle bisectors have the same ratio* as their corresponding sides.

12

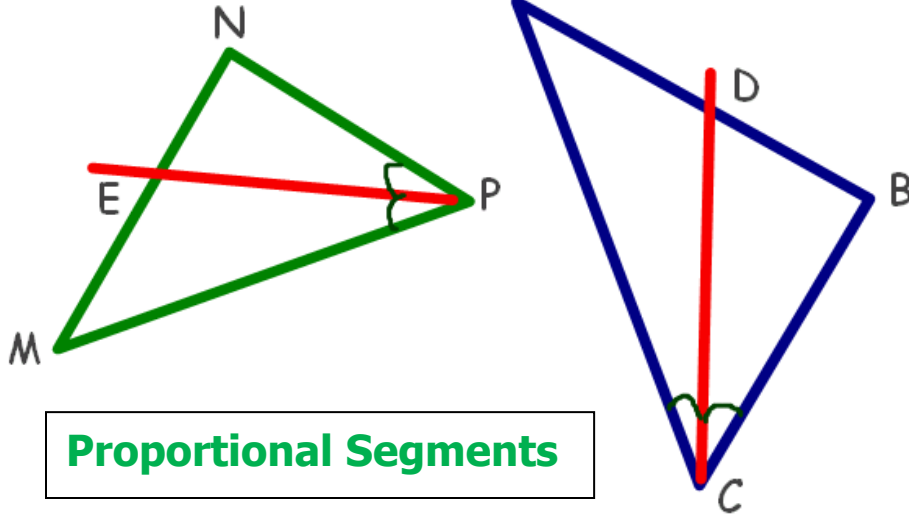
Proportional Medians

If two triangles are *similar* then their *medians have the same ratio* as their corresponding sides.

11

Unit 7

$$\triangle MNP \sim \triangle ABC$$



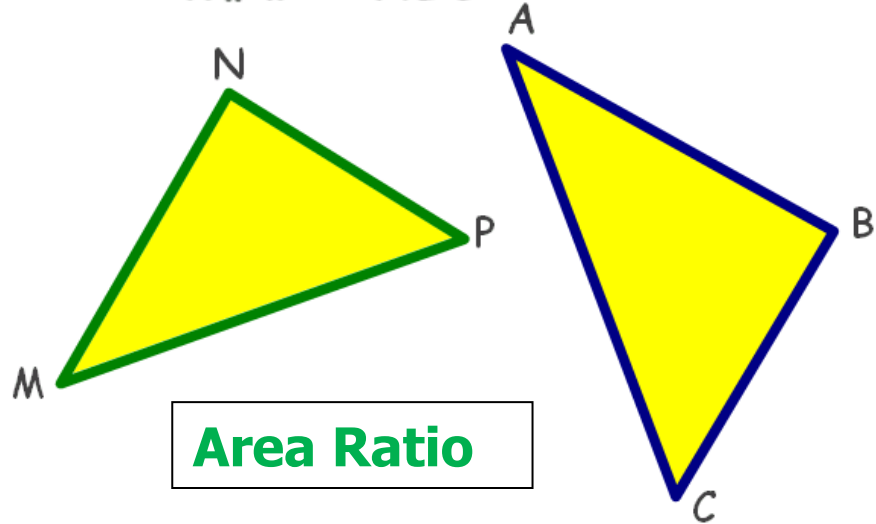
Proportional Segments

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Unit 7

$$\triangle MNP \sim \triangle ABC$$



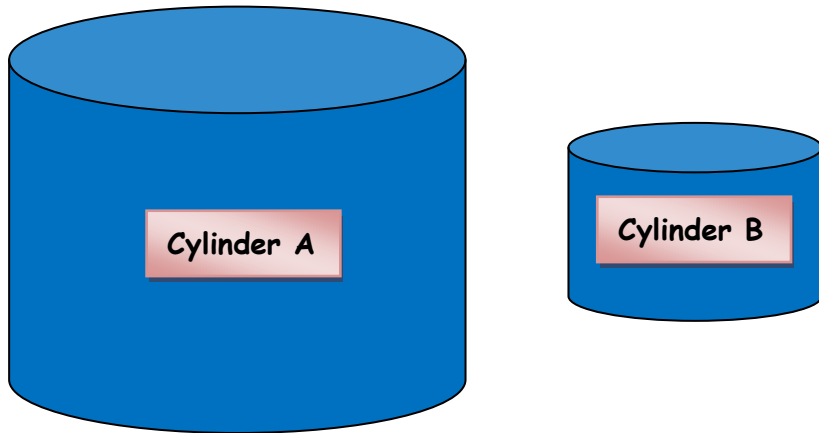
Area Ratio

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Unit 7

Volume Ratio



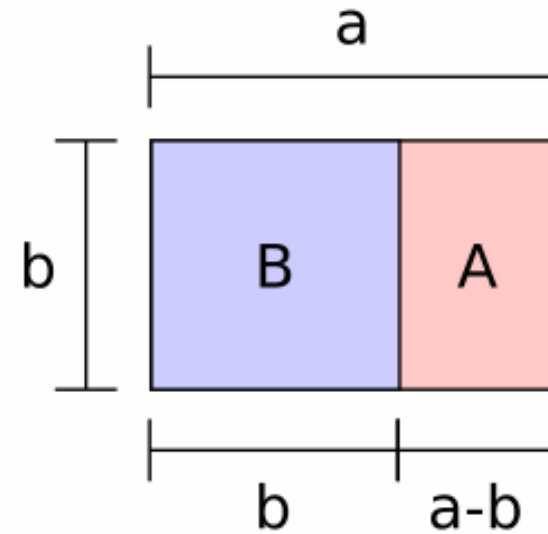
Cylinder A is similar to Cylinder B

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Unit 7

s.wikimedia.org/wiki/File:Golden_rectan...



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Ratio of Area of Similar Figures

Two similar figures with corresponding side measures in the ratio of a/b have *areas* in ratio a^2/b^2 .

Proportional Segments

An *angle bisector* of a triangle divides the opposite side into *two segments that have the same ratio* as the other two sides.

Golden Rectangle

$$\frac{a}{b} = \frac{a-b}{a}$$

Ratio of Volume of Similar Figures

Two similar solids with corresponding side measures in the ratio of a/b have *volumes* in ratio a^3/b^3 .