How can we prove that two triangles are similar?

2 $\measuredangle$s are $\cong$

Side lengths are proportional

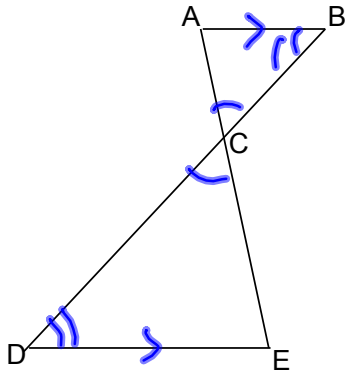
AA~

Angle-Angle Similarity

If 2 $\angle$s of one $\triangle$ are $\cong$ to 2 $\angle$s of another $\triangle$, then the $\triangle$s are $\sim$.

Given: AB || ED

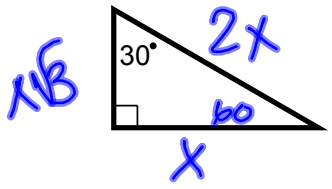
Prove: △ABC ~△DEC

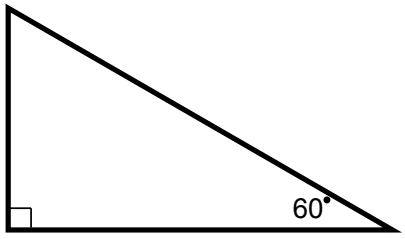


$\angle ACB \cong \angle ECD$ b/c they're vertical angles. Since $AB \parallel ED$, $\angle B \cong \angle D$ b/c they're alternate interior angles.

$\therefore \triangle ABC \sim \triangle DEC$ b/c of AA~.

Are the triangles similar?





$30+90+x=180$

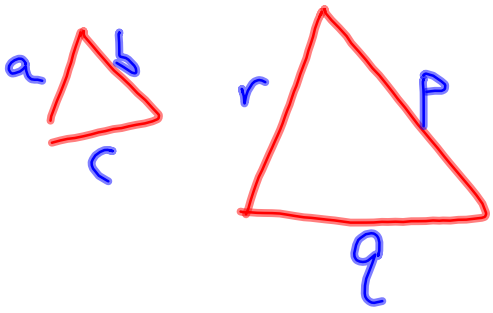
$x=60$

Yes! b/c of AA~.

SSS~

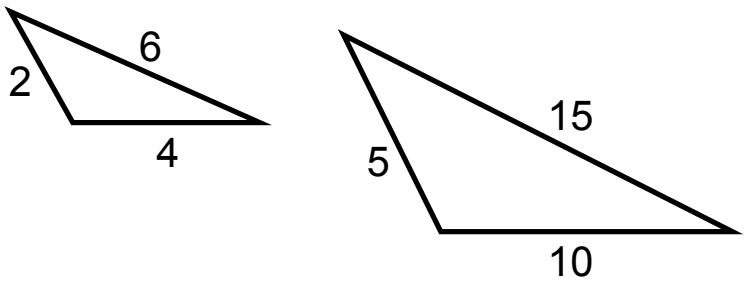
Side-Side-Side Similarity

If the ratios of all the corresponding side lengths are equal in 2 Δs, then they are $\sim$.



$$\frac{a}{r} = \frac{b}{p} = \frac{c}{q}$$

Are the triangles similar?



Yes, b/c of SSS~.

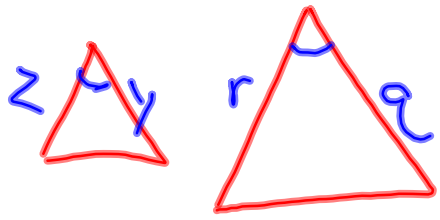
$$\frac{2}{5} = \frac{6}{15} = \frac{4}{10}$$

$30 = 30$ $60 = 60$ $20 = 20$

SAS~

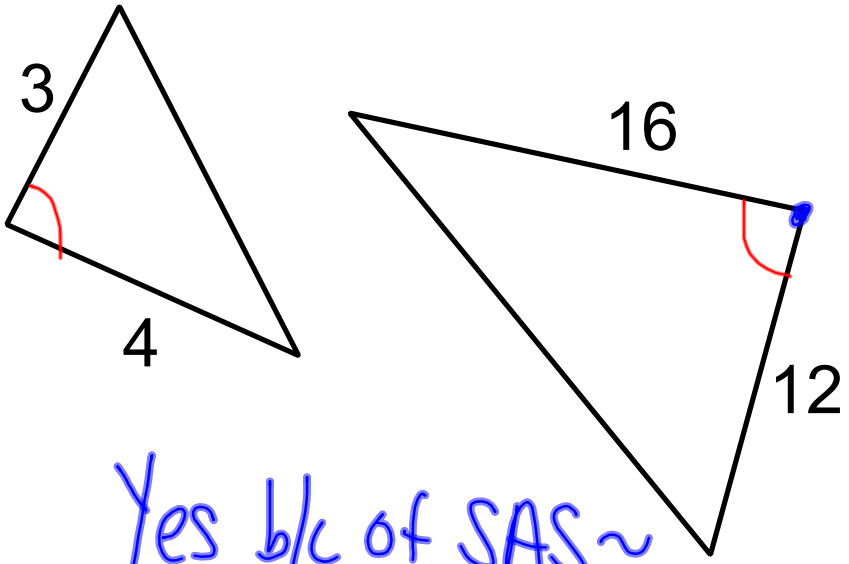
Side-Angle-Side Similarity

If 2 sides of one Δ are proportional to 2 sides of another Δ AND the included $\angle$ is $\cong$, then the 2 Δs are $\sim$.



$$\frac{z}{r} = \frac{y}{q}$$

Are the triangles similar?



$\frac{3}{12} = \frac{4}{16}$

$48 = 48$ ✓

Yes, b/c of SAS~

April 23, 2014