PRAYER

Most blessed Lord, send the grace of Your Holy Spirit on me to strengthen me that I may learn well the subject I am about to study and by it become a better person for Your glory, the comfort of my family, and for the benefit of Your Church and the world.

Amen.

ANNOUNCEMENTS

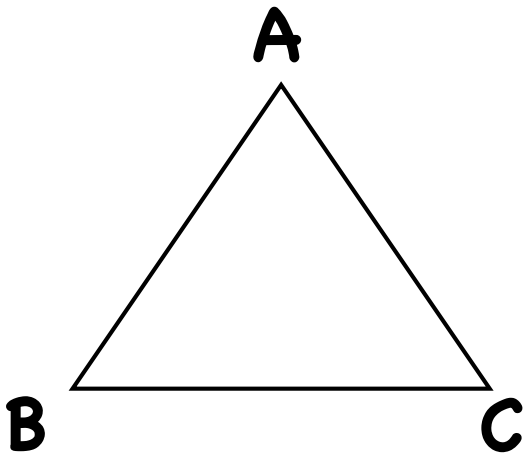
Final Project

- Sign up for the final project as pairs (groups of 2 only).
- I will assign the proposition which you will present, and I'll give you additional directions soon.
- You will present during class - December 5th and 7th.
- You will have to turn in the problems that each group presents as well.

Final Quiz

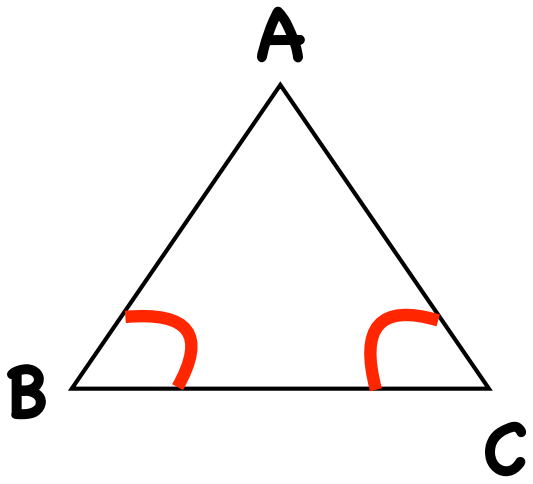
- No class on Thursday - so no Quiz!
- The last quiz will be next Thursday, November 30th. It will be a longer quiz though and will cover everything we have learned during the semester. Don't worry! - it won't be as intense as the midterm exam and you'll be able to use your notes :)

PROPOSITION 1.17



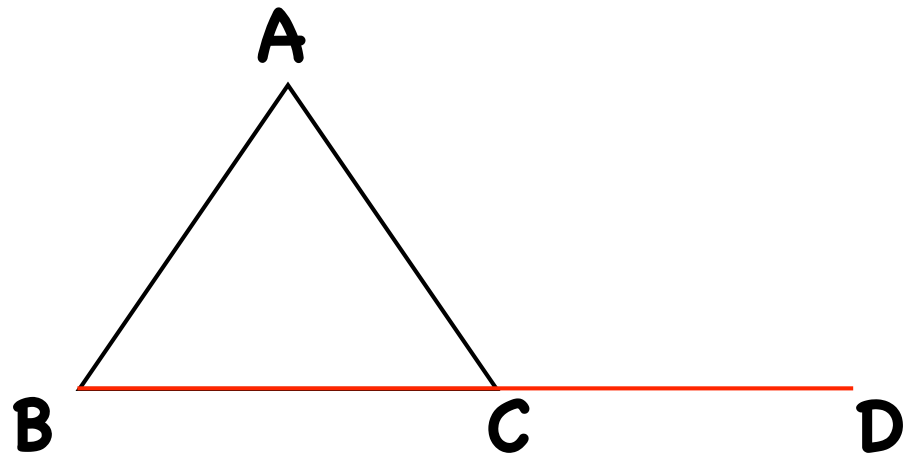
Given: a triangle

$\triangle ABC$



Prove: sum of any two angles is less than the sum of two right angles.

$\measuredangle ABC + \measuredangle BCA <$ sum of two right angles



$\measuredangle$ACD > $\measuredangle$ABC (**Prop 1.16**)

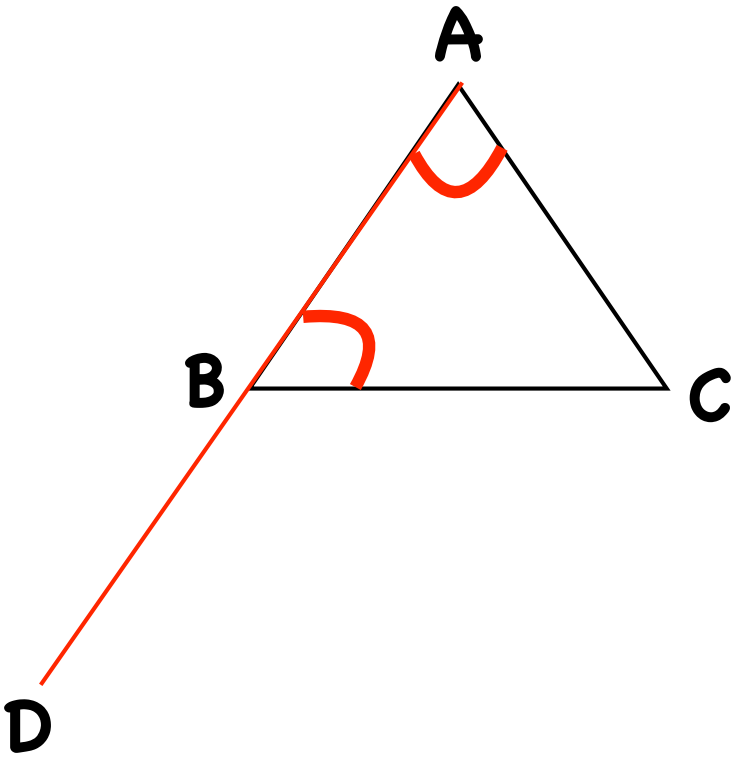
$\measuredangle$ACD + $\measuredangle$BCA > $\measuredangle$ABC + $\measuredangle$BCA (**A2**)

Sum of two right angles > $\measuredangle$ABC + $\measuredangle$BCA (**Prop 1.13 -** since $\measuredangle$ACD + $\measuredangle$ACB = Sum of two right angles)

Therefore,
$\measuredangle$ABC + $\measuredangle$BCA < Sum of two right angles

Prove the following:

$\measuredangle ABC + \measuredangle BAC <$ sum of two right angles



$\measuredangle CBD > \measuredangle BAC$ (**Prop 1.16**)

$\measuredangle CBD + \measuredangle ABC > \measuredangle ABC +$

$\measuredangle BAC$ (**A2**)

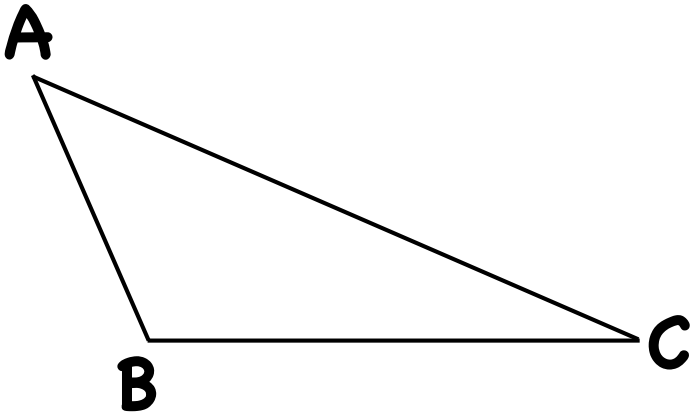
Sum of two right angles >

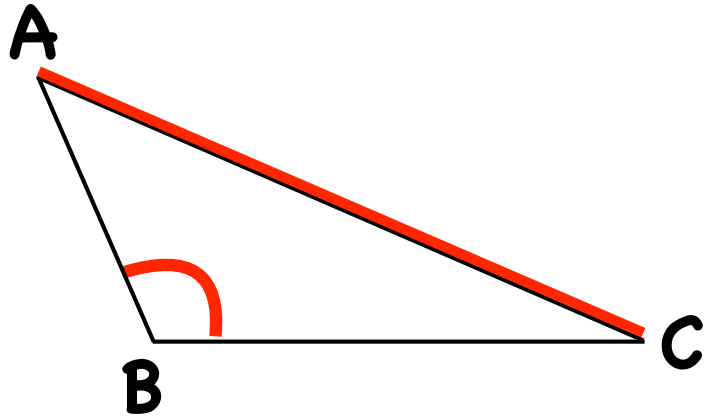
$\measuredangle ABC + \measuredangle BAC$ (**Prop 1.13**)

Therefore,

$\measuredangle ABC + \measuredangle BAC <$ Sum of two right angles

PROPOSITION 1.18





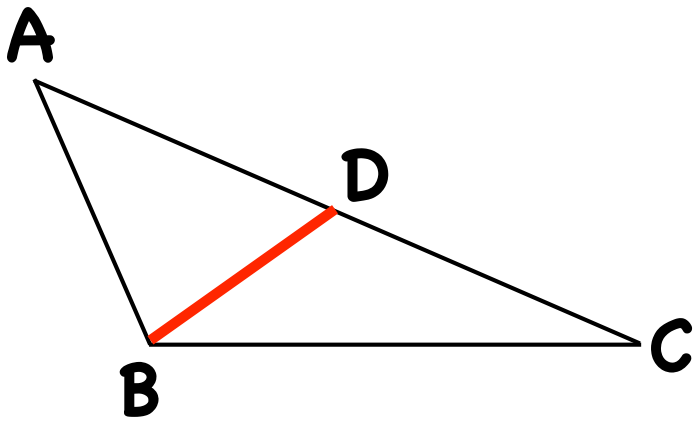
Given: a triangle

$\triangle ABC$

Prove: the angle opposite the greater side is greater.

$\measuredangle ABC > \measuredangle ACB$

because $AC > AB$



Cut AC so AD=AB (**Prop 1.3**)
Join point B and D (**P1**)

Since $\measuredangle$ADB is an exterior angle of the triangle BCD, therefore
$\measuredangle$ADB > $\measuredangle$DCB (**Prop 1.16**)

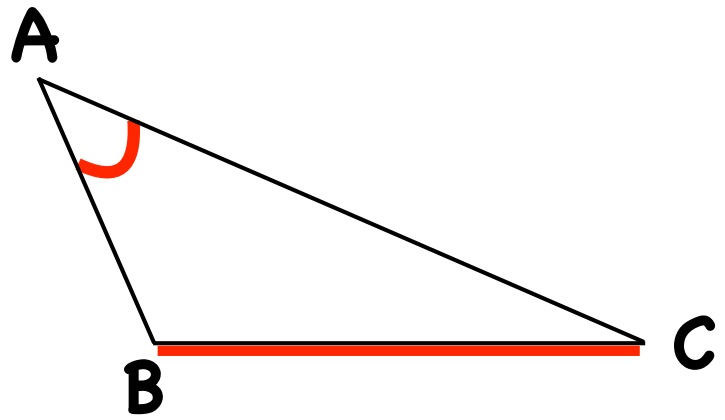
$\measuredangle$ADB = $\measuredangle$ABD since AB=AD (**Prop 1.5**).

Therefore,
$\measuredangle$ADB > $\measuredangle$DCB

$\measuredangle$ABD > $\measuredangle$DCB ($\measuredangle$ACB)

$\measuredangle$ABC > $\measuredangle$ABD > $\measuredangle$ACB (**A5**)

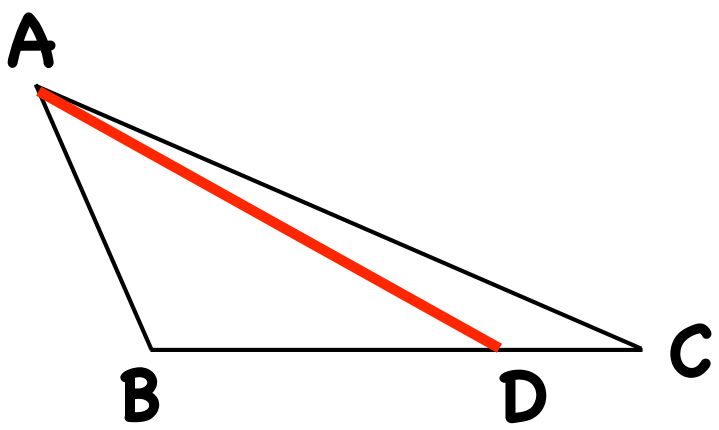
$\measuredangle$ABC > > $\measuredangle$ACB



Prove the following:

$\measuredangle BAC > \measuredangle ACB$

because $BC > AB$



Cut BC so BD=AB (**Prop 1.3**)
Join point A and D (**P1**)

Since $\measuredangle$ADB is an exterior angle of the triangle ADC, therefore
$\measuredangle$ADB > $\measuredangle$ACD (**Prop 1.16**)

$\measuredangle$ADB = $\measuredangle$BAD since AB=BD (**Prop 1.5**).

Therefore,
$\measuredangle$ADB > $\measuredangle$ACD

$\measuredangle$BAD > $\measuredangle$ACD ($\measuredangle$ACB)

$\measuredangle$BAC > $\measuredangle$BAD > $\measuredangle$ACB (**A5**)

$\measuredangle$BAC > > $\measuredangle$ACB


NO
HOMEWORK