

Math 10270 : Quiz 1

1. (5 points.) Consider any *acute* triangle, (that is, one with all angles less than 90°). Let α , β and γ be its angles, and denote the lengths of the sides opposite these angles by a , b and c respectively.

Verify the Law of Sines, namely that

$$\frac{\sin \alpha}{a} = \frac{\sin \beta}{b} = \frac{\sin \gamma}{c}.$$

2. (5 points.) A ladder makes an angle of 60° degrees with the ground and rests against a frictionless vertical wall. Assume that the ladder itself is weightless, but a weight of 190 lb. is placed at the top of the ladder. Calculate the horizontal force H applied by the wall to support the ladder.