Rectangle of perimeter L m. Find in terms of L:

[a] The maximum area.

l

w

2w + 2l = L → l =

A = lw = ()w

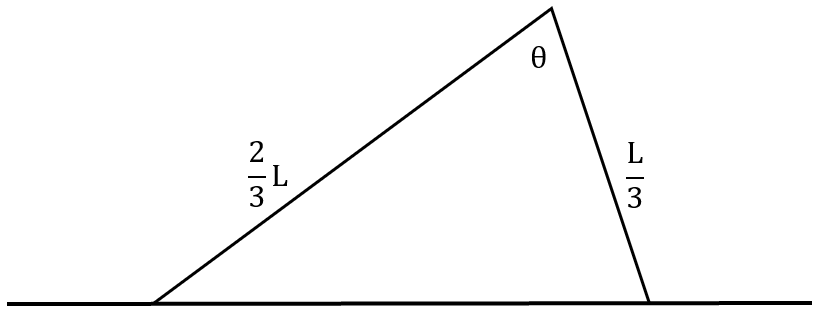
[b] The dimensions.

A’ = → A’ = 0 → w =

l = = x =

**A triangle has one side twice as long as the other, the third being replaced with a sufficiently long straight wall.**

**[a] Determine the maximum area, in terms of L. You don’t necessarily have to use calculus techniques but be sure to state your reasoning.**



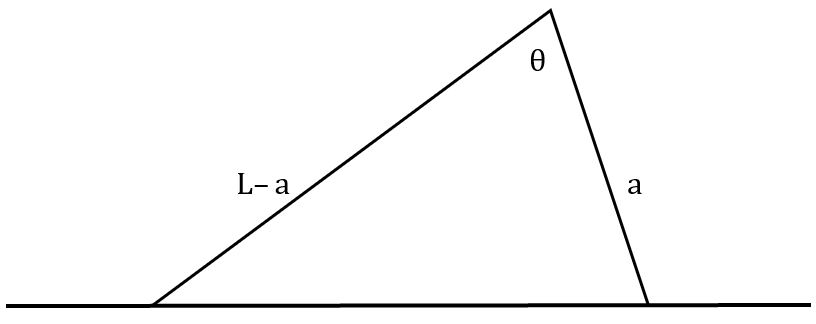
Let ‘A’ represent area.

A = ()()sinθ = sinθ = sinθ

= cosθ → A’ = 0 → θ = (0<θ<π)

A = sin() =

**[b] Determine what would happen if the sides had no restrictions. Use calculus.**



Let ‘A’ represent area.

A = (L–a)(a)sinθ = sinθ

= cosθ → A’ = 0 → θ = (0<θ<π)

A = sin() =

= → A’ = 0 → a =

A = (L–a)(a) = (L – )() = ()2 = x =