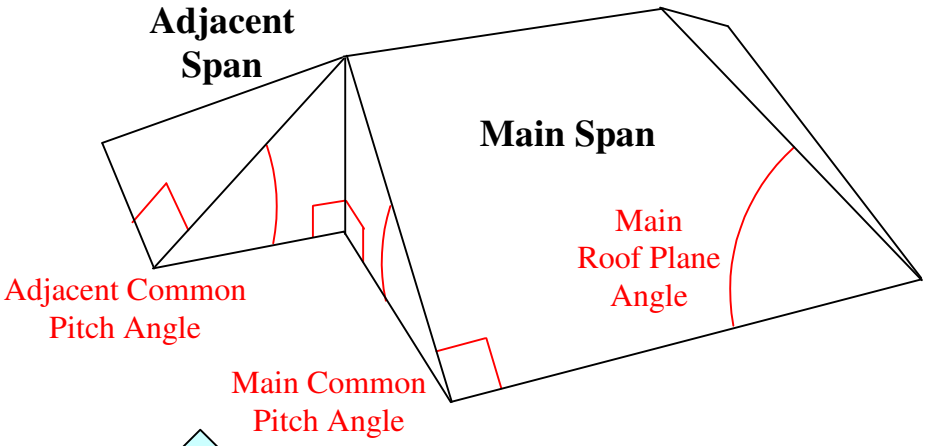
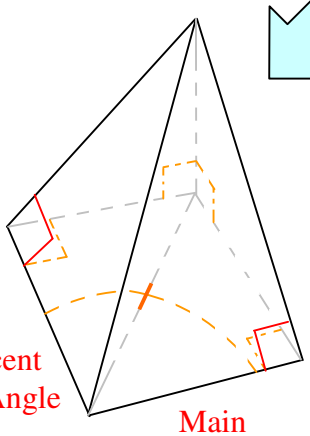
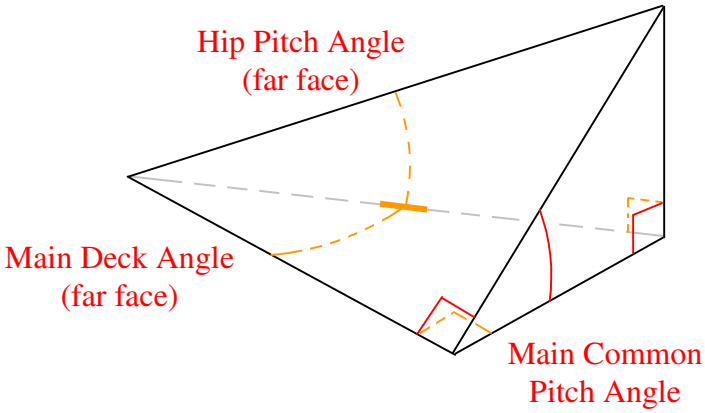
Hip Roof Models





Above and Left: Juxtaposed Main and Adjacent sections removed from the Hip roof.

Below: Main side section of Hip roof. This is also the standard model for a Valley roof.



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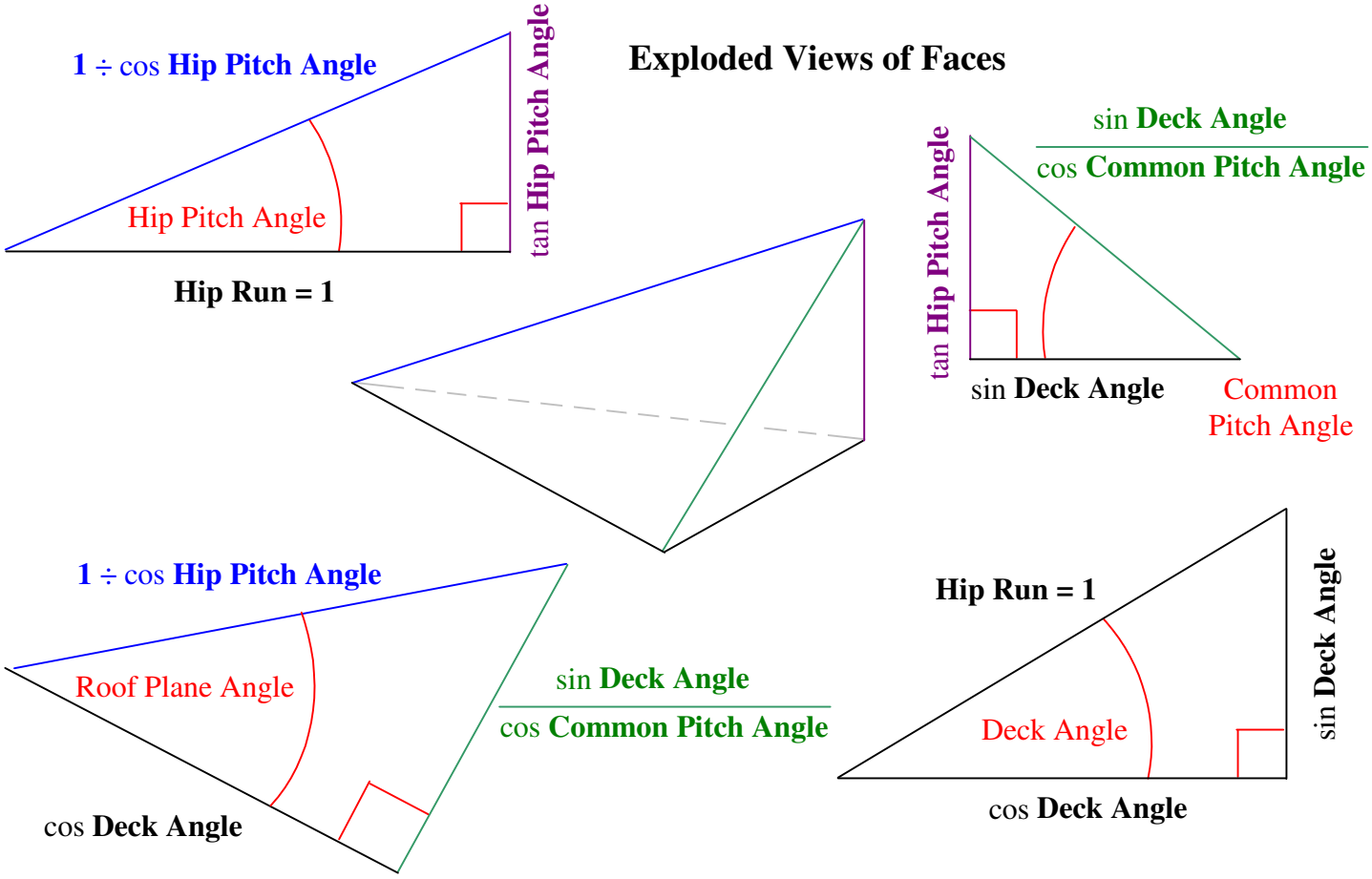
Hip Roof Model : Hip Run = 1



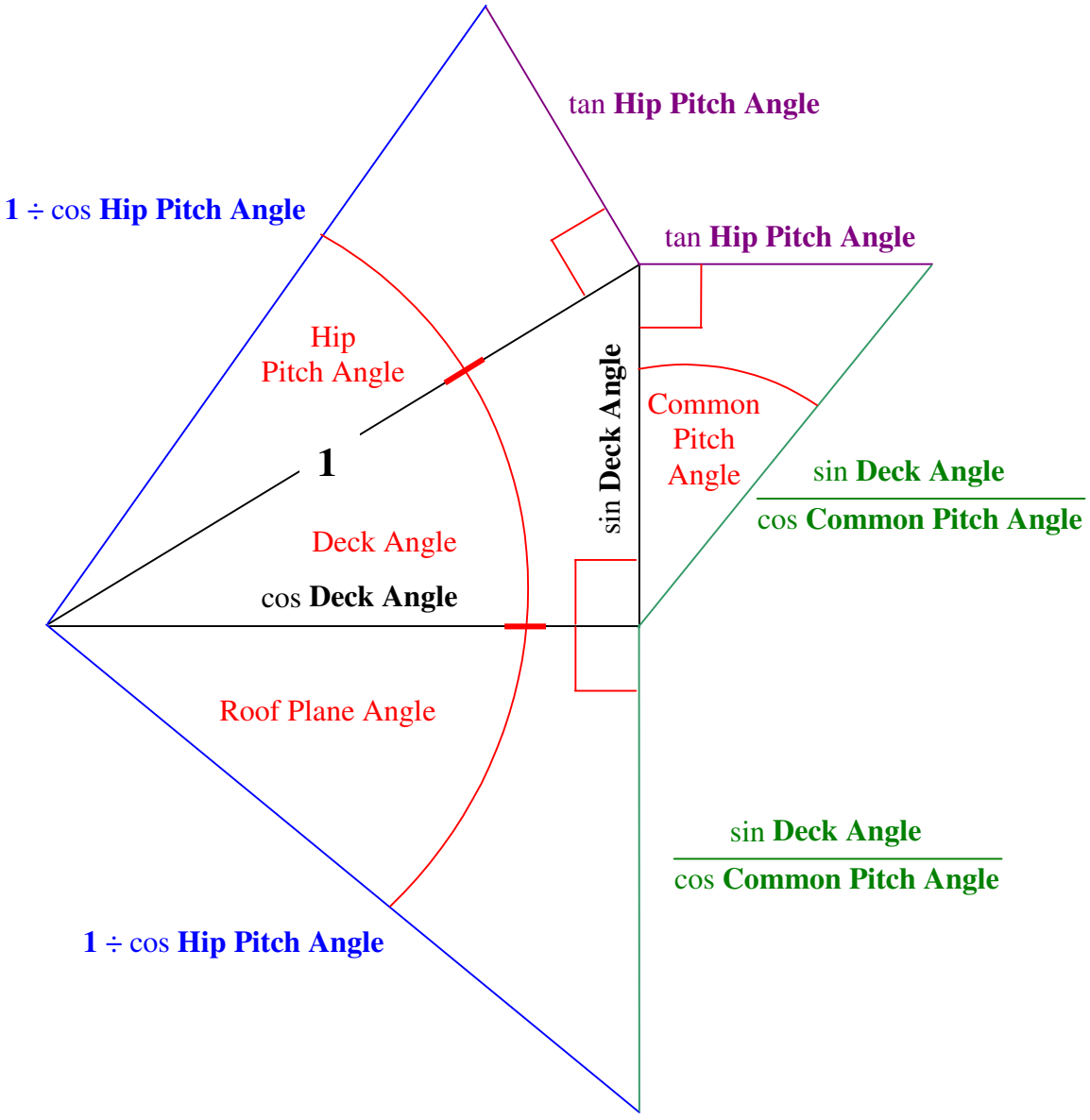
Trigonometric Scaling

The model of the Hip Roof may be drawn to **any** scale. All angles remain equal, all lengths remain proportional. Trigonometric scaling creates right triangles which readily produce formulas relating angles on different faces of the model.

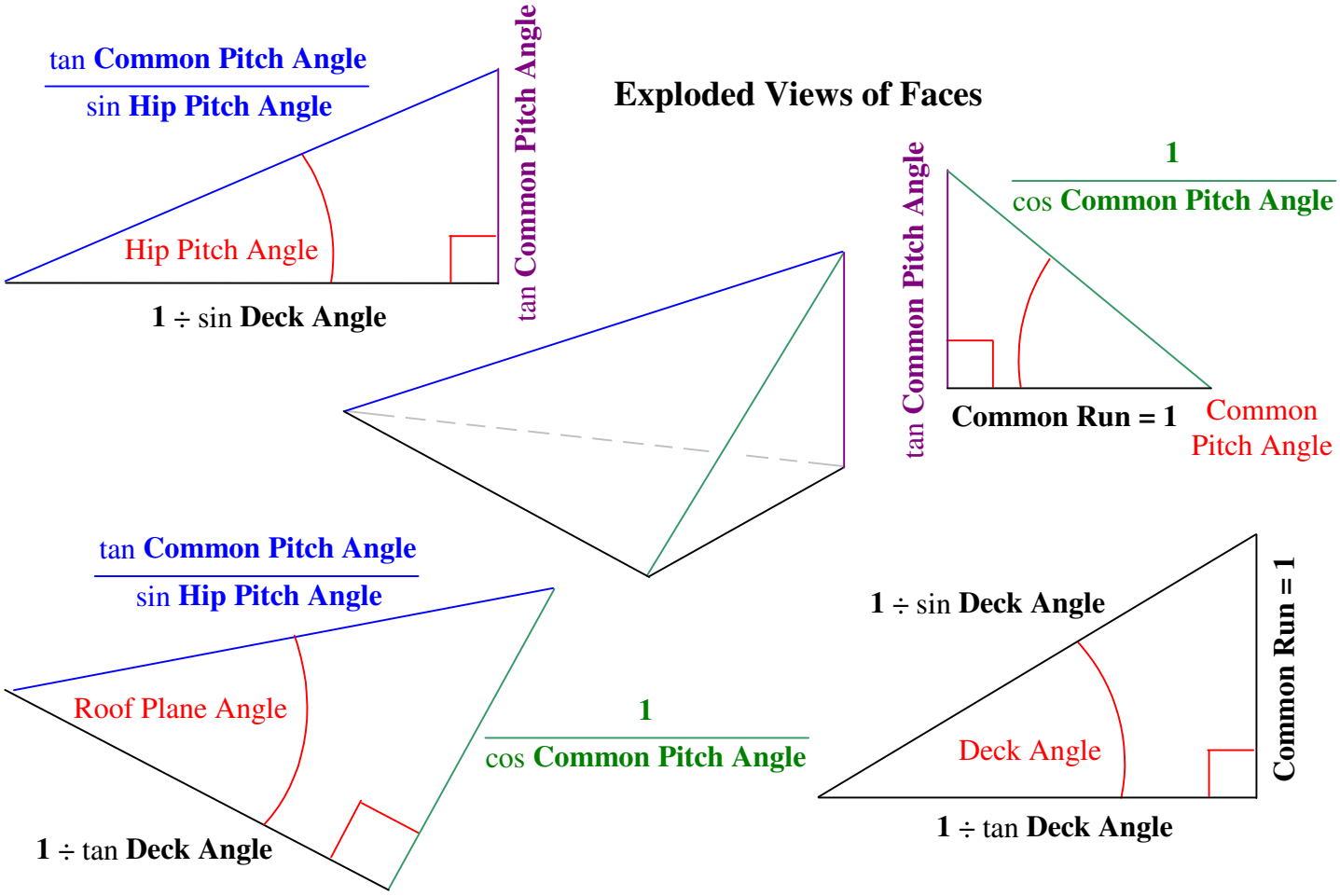
Hip Run = 1
Hip Length = 1 ÷ cos Hip Pitch Angle
Hip Rise = Common Rise = tan Hip Pitch Angle
Common Run = sin Deck Angle
Common Length = sin Deck Angle ÷ cos Common Pitch Angle
Eave = cos Deck Angle

Development of Hip Roof Model : Hip Run = 1

The triangles in the previous diagram have been juxtaposed about the triangle of the **Deck Angle**.
All lengths may be multiplied by any convenient factor to create a development with a workable scale.
Edges highlighted the same color are of equal length; most of the development can be drawn using only a compass and straightedge.



Hip Roof Model : Common Run = 1



Trigonometric Scaling

The model of the Hip Roof may be drawn to **any** scale. All angles remain equal, all lengths remain proportional. Trigonometric scaling creates right triangles which readily produce formulas relating angles on different faces of the model.

Common Run = 1
Common Length = 1 ÷ cos **Common Pitch Angle**
Hip Rise = Common Rise = tan **Common Pitch Angle**
Hip Run = 1 ÷ sin **Deck Angle**
Hip Length = tan **Common Pitch Angle** ÷ sin **Hip Pitch Angle**
Eave = 1 ÷ tan **Deck Angle**

Development of Hip Roof Model : Common Run = 1

The triangles in the previous diagram have been juxtaposed about the triangle of the **Deck Angle**.
All lengths may be multiplied by any convenient factor to create a development with a workable scale.
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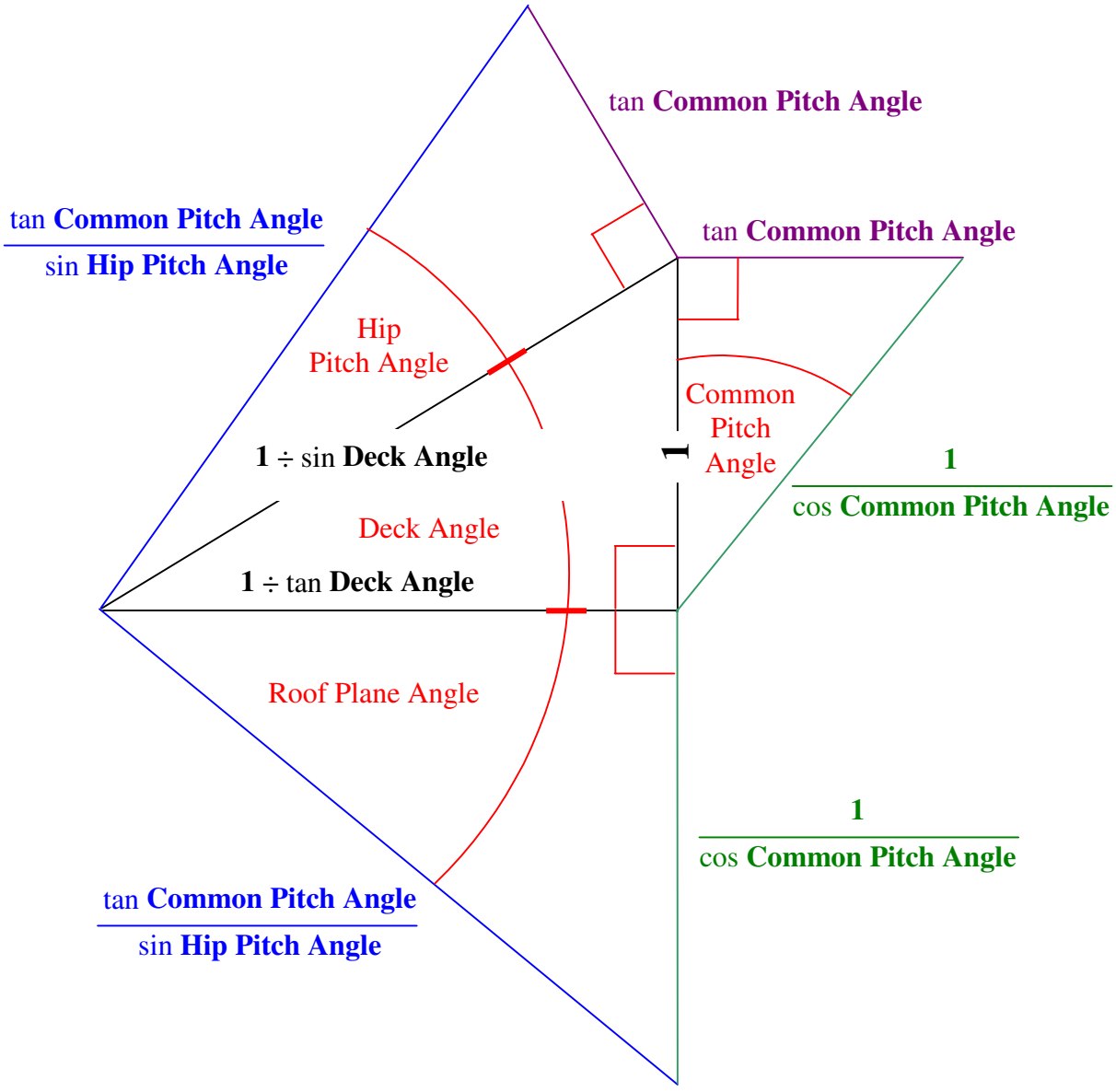
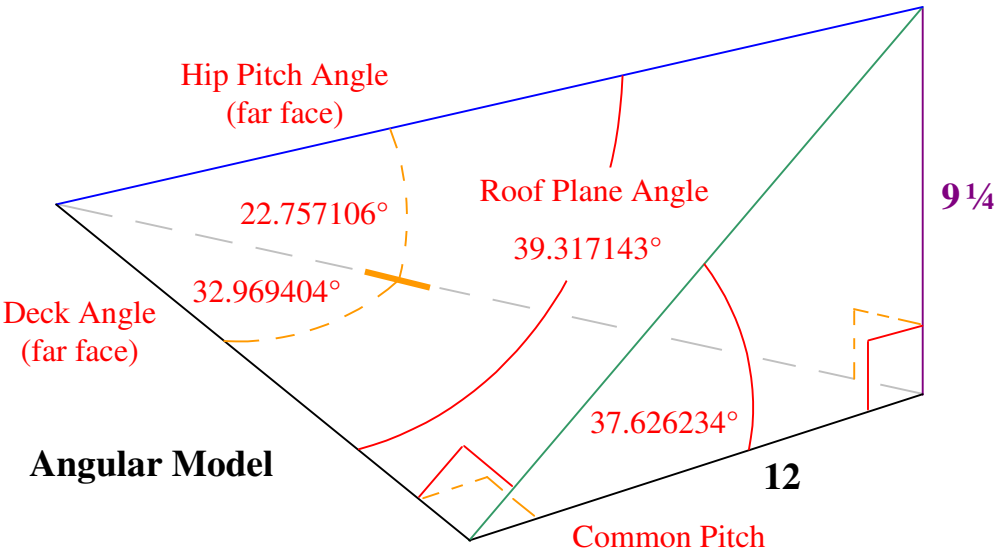
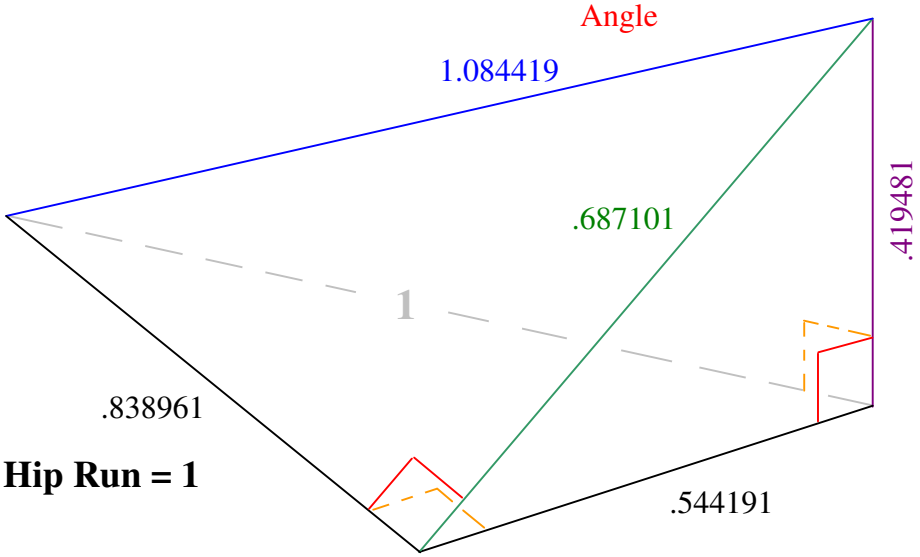


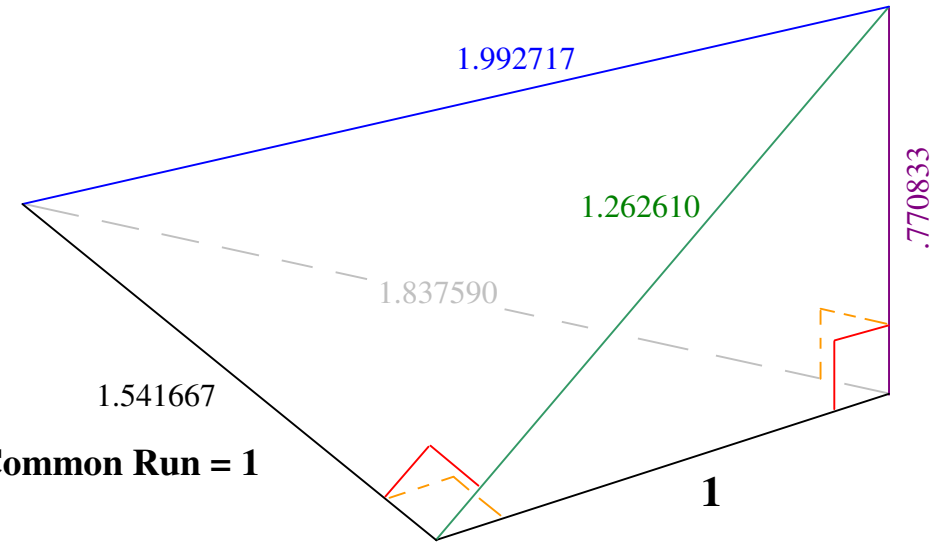
Hip Roof Models to Scale



Angular Model



Hip Run = 1



Common Run = 1

J. Bartok