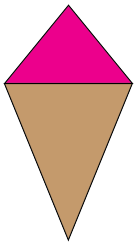
Problem of the Week

Problem D

Who Wants Ice Cream?

Xavier made a quilt block to represent an ice cream cone. The quilt block is composed of two isosceles triangles arranged to form a kite. The top triangle represents the ice cream and the bottom triangle represents the cone. The height of the bottom triangle is twice the height of the top triangle. The base of each triangle is $\frac{3}{4}$ of the height of the bottom triangle. If the area of the quilt block of the ice cream cone is 576 units^2, what is its perimeter?



NOTE: You may use the fact that the altitude of an isosceles triangle drawn to the unequal side bisects the unequal side.