

Problem 1. Find the roots of the quadratic function.

(a) $g(x) = x^2 - 2x - 35$

(b) $f(x) = (x - 3)^2 - 5$

(c) $h(x) = -3x^2 + 11x - 7$

Problem 2. The side of a rectangular house is $2/3$ as long as the front. The total area of the house is 2400 square feet. Find the dimensions of the house.

Problem 3 (Extra Credit). The locus of the equation $x^2 + y^2 = 169$ is a circle of radius 13 centered at the origin. The line $12y = 5x$ intersects this circle in two points. Find these points. Justify your answer.