Math Problems

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Contents

Chapter 1

Gary Larson's Recommended Problems

1.1 Hypatia's Problem

Given two integers a and b, find integer values for x and y such that

$$(x - y) = a \tag{1.1.1}$$

$$x^2 - y^2 = (x - y) + b \tag{1.1.2}$$

1.2 Ramp

Describe a ramp such that a ball will reach the bottom in the same amount of time no matter where its starting position is.

1.3 Factor a 15th Order Polynomial

Factor the polynomial

$$x^{15} + 1 \tag{1.3.1}$$

into two polynomials of order 6 and order 9, like so:

$$(a_6 x^6 + a_5 x^5 + \cdots + a_0)(b_9 x^9 + b_8 x^8 + \cdots + b_0) \tag{1.3.2}$$