

V63.0005.002, Spring 2002
Mathematical Thinking
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Quiz 2

Answer all questions on this paper. Show your work.

1. Isaac throws a ball up into the air from the top of the Tower of London, and observes that the ball's height measured in feet after t seconds is given by the expression

$$\text{height} = -16t^2 + 2t + 100.$$

Albert however insists that Isaac is wrong and the height is actually given by

$$\text{height} = 2t(2 - 8t) + 100 - 2t.$$

Isaac replies, "you idiot, that's the same thing!" Who is right? (Justify your answer.)

2. (a) Factor $x^2 + x - 12$.

(b) For what values of x do we have $x^2 + x - 12 = 0$?

(c) For what range of values of x do we have $x^2 + x - 12 > 0$?

3. Factor $7y^4 - 2y^3 + 4y^5$.