Math 120 A - Spring 2013
Mid-Term Exam Number Two
May 23, 2013
Answers

There were two versions of the exam.
Version A: In problem 1, Magdalena's height never exceeds 180 cm.

1. (a) $h(t) = \dfrac{180t - 1560}{t - 8}$ (b) $t = 25.1428857$.
2. (a) $x = r\cos\left(-\dfrac{44\pi}{95} + \dfrac{2\pi}{95}t\right), y = r\sin\left(-\dfrac{44\pi}{95} + \dfrac{2\pi}{95}t\right)$ (b) 125.0633 seconds
3. 104.82895 years after 2000.
4. (a) $x = -\frac{3}{2}$ (b) $x = 6$ and $x = 2$ (c) $g(x) = \frac{2}{3}x + 2$

Version B: In problem 1, Magdalena's height never exceeds 200 cm.

1. (a) $h(t) = \dfrac{200t - \frac{2000}{9}}{t + \frac{55}{9}}$ (b) $t = 66.11111111$
2. (a) $x = r\cos\left(-\dfrac{36\pi}{80} + \dfrac{2\pi}{80}t\right), y = r\sin\left(-\dfrac{36\pi}{80} + \dfrac{2\pi}{80}t\right)$ (b) 85.71428 seconds
3. 40.2094 years after 2000.
4. (a) $x = -\frac{13}{10}$ (b) $x = 3$ and $x = 7$ (c) $g(x) = 4x + 2$