MA 231   Practice Exam Answers   Spring 2013

1. $y = \dfrac{\log_3 e - 1}{2}$

2. relative maximum value: $y = 27$; relative minimum value: $y = -5$

3. absolute max: $\frac{1}{3}e^{-3}$; absolute min: $-\frac{2}{3}$

4. $f'(x) = e^{-5x}\sec\sqrt{x}\left(-5 + \dfrac{\tan\sqrt{x}}{2\sqrt{x}}\right)$

5. $g'(0) = \dfrac{-4 + 15e}{16}$

6. $\dfrac{dy}{dx} = \dfrac{-y}{x + 2y - \cos y}$

7. $\frac{79}{27}$

8. No horizontal asymptotes; oblique asymptote: $y = -2x - 1$; vertical asymptotes: $x = \sqrt{5}$ and $x = -\sqrt{5}$

9. 120,006 units of pollution per year

10. 11.53 days

11. 64 ft^2

12. $4\pi r^2 + \dfrac{16}{r}$