MATH 21A, practice problems for Midterm 2
Answer key

1.a) $\frac{\cos(x)\ln(x) - \sin(x)/x}{\ln^2(x)}$

b) $e^x + xe^x$

c) $-\frac{e^{\ln(2+x) - \ln(1+x)}}{(1+x)(2+x)}$.

d) $\sin(x)^{\cos(x)}\left(\frac{\cos^2(x)}{\sin x} - \sin(x)\ln(\sin(x))\right)$

e) $\left(\frac{\sqrt{x+1}}{\sqrt{x-1}}\right) \cdot \frac{1}{(1+x)^2}$.

2. a) $y' = -3x/2y$

b) $y' = -\sin(x)/\sin(y)$

c) $y' = y/x$

3. $y = 3e^{-1}x - 2e^{-1}$

4. a) $\min = 0, \max = 4 + \sin(4)$

b) $\min = -53, \max = 55$

c) $\min = 0, \max = \ln(2)/2$.

5. 9×18 in.

6. $1/\sqrt{5}$

7. $125.