

## Answers for Quiz #6

1. a.  $\frac{dy}{dx} = \frac{2x^2y - y}{x - xy}$   
b.  $f'(x) = \frac{-xe^{-x^2}}{\sqrt{e^{-x^2} - 1}}$   
c.  $\frac{dy}{dx} = \frac{15}{3x+4} - \frac{2}{2x+9}$   
d.  $\frac{dy}{dx} = \left[ \frac{2}{10x+5} + \frac{17}{x+3} - \frac{161}{7x-3} \right] \frac{\sqrt[5]{2x+1}(3x+9)^{17}}{(7x-3)^{23}}$
2. a. No increasing intervals  
Decreasing intervals:  $(0, 36) \cup (36, \infty)$   
No relative extrema  
b. Increasing:  $(-\infty, 2) \cup (3, \infty)$   
Decreasing:  $(2, 3)$   
Relative max:  $(2, 6/e^4)$ , Relative min:  $(3, 0)$
3. a.  $-\frac{x^2}{2} - 2\ln|4 - x^2| + C$   
b.  $\frac{1}{2}\ln|5 + 2\sin x| + C$   
c.  $\frac{1}{2}\ln|2|$   
d.  $\frac{x^3}{3} + x^2 - x + \ln|x - 2| + C$
4.  $\frac{-3}{\pi}\ln\left(\frac{1}{2}\right)$

If you feel that there are errors with this answer page, please email Brian Beck-Smith at [bbeck@utdallas.edu](mailto:bbeck@utdallas.edu).