

Name: _____

Key to Practice Test 1 for Test 2 (151I,L)

1. $2x$ (the point is to show the work correctly)

2. (a) $4x + 7 + \frac{3}{2}x^{-1/2}$.

(b) $\frac{(x+2)(3x^2) - (x^3+1)}{(x+2)^2}$.

3. (a) $y' = 2e^{3x} \cos(2x) + 3e^{3x} \sin(2x)$.

(b) $y' = \frac{(x+2)^3(-\sin x) - (\cos x)(3)(x+2)^2}{(x+2)^6}$.

4. $y - 1 = \frac{-5}{4}(x - 2)$.

5. (a) $y' = \frac{2 \sin(\ln x) \cos(\ln x)}{x}$.

(b) $y' = \frac{t - 2t \ln t}{t^4}$.

(c) $y' = (\sin x)^x [x \cot x + \ln(\sin x)]$.

(d) $y' = \sqrt[3]{(x^3+1)(x+1)^3} \left(\frac{x^2}{x^3+1} + \frac{1}{x+1} \right)$.

6. Find y' :

(a) $y' = \frac{x^2}{1+x^2} + 2x \arctan x$.

(b) $y' = 3x^2 e^x \cos(x^3) + e^x \sin(x^3)$.

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

7. $\frac{dy}{dt} = \frac{-9}{8}$.

8. see page 212 in your book.

9. f has an absolute maximum at $-1/\sqrt{3}$ and an absolute minimum at $1/\sqrt{3}$. The values are

$$\frac{2}{3\sqrt{3}}, \frac{-2}{3\sqrt{3}},$$

respectively.