

## Calc 2 - Practice Test #1A

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**Instructions.** Answers follow this section. Solutions follow the Answer section.

1.  $\int \frac{3t^2}{(2t^3+1)^{\frac{1}{2}}} dt =$

2.  $\frac{d}{dx} [\cos(4x^2 + 3x + 2)] =$

3.  $\frac{d}{dx} [\sin(\cos x)] =$

For problems 4 and 5, Suppose  $P(x)$  has the property that  $P'(x) = \frac{1}{x}$

4. Compute:  $\frac{d}{dx} [P(\sin(x))]$

5. Compute:  $\frac{d}{dx} [P(4x^3 + 7x^2)]$

6.  $\int \frac{4x}{(9x^2+3)^2} dx =$

7.  $f(x) = 3 \sin(x) - 4 \cos x; f'(x) =$

8.  $\frac{d}{dx} [\cos^5(x)] =$

9.  $\frac{d}{dx} [\sin^2(6x^2 + 3x)]$

10.  $\int (1 + \cos x)^{\frac{3}{2}} \sin x dx$

11.  $\int \frac{\sin x}{\sqrt{\cos x}} dx$

12.  $\int (1 + \sin x) \cos x dx$

13.  $\frac{d}{dx} [\csc(\sqrt{x})] =$

14.  $f(x) = (1 + \sec^3 x)^{\frac{1}{2}}; f'(x) =$

15.  $\frac{d}{dx} [\cot(x^2 + 2x)] =$

16.  $\frac{d}{dx} [\sin(\tan(3x))] =$

17.  $\int \frac{\tan^2(\sqrt{x})}{\sqrt{x}} dx$  ( hint: use a trig identity )

18.  $\int \tan(3x) \sec^2(3x) dx$

19.  $\int \tan^7(x) \sec^2(x) dx$

20.  $\int \sec^3(x) \tan(x) dx$