38. At what point on the graph of $y = \frac{1}{2}x^2$ is the tangent line parallel to the line $2x - 4y = 3$?

A. $\left(\frac{1}{2}, -\frac{1}{2}\right)$
B. $\left(\frac{1}{2}, \frac{1}{8}\right)$
C. $\left(1, -\frac{1}{4}\right)$
D. $\left(1, \frac{1}{2}\right)$
E. (2, 2)

normal line is ⊥ to tangent line. m=2 †m=-½

39. The slope of the line normal to the graph of $y = 2\ln(\sec x)$ at $x = \frac{\pi}{4}$ is

A. -2
B. $-\frac{1}{2}$
C. $\frac{1}{2}$
D. 2
E. nonexistent

40. The line normal to the curve $y = \sqrt{16 - x}$ at the point (0, 4) has slope

A. 8
B. 4
C. $\frac{1}{8}$
D. $-\frac{1}{8}$
E. -8

Remember you can Rewrite

41. $\int_1^e \frac{x^2 - 1}{x} dx =$

A. $e - \frac{1}{e}$
B. $\frac{e^2}{2} - e + \frac{1}{2}$
C. $\frac{e^2}{2} - \frac{3}{2}$
D. $e^2 - e$
D. $e^2 - 2$

Remember you can Rewrite

42. $\int_0^1 \sqrt{x}(x + 1)dx =$

A. 0
B. $\frac{16}{15}$
C. 2
D. 1
E. $\frac{7}{5}$

If you don't want to Rewrite, this multiplication is way to much! U-Sub!!

43. $\int (3x + 1)^5 dx =$

A. $\frac{(3x + 1)^6}{18} + C$
B. $\frac{(3x + 1)^6}{2} + C$
C. $\left(\frac{3x^2}{2} + x\right) + C$

D. $\frac{(3x + 1)^6}{6} + C$
E. $\frac{\left(\frac{3x^2}{2} + x\right)^6}{2} + C$

44. $\int x^2 \cos\left(x^3\right) dx =$

    A. $-\dfrac{1}{3}\sin(x^3)+C$ B. $\dfrac{-x^3}{3}\sin(x^3)+C$ C. $\dfrac{x^3}{3}\sin\left(\dfrac{x^4}{4}\right)+C$

    D. $\dfrac{1}{3}\sin(x^3)+C$ E. $\dfrac{x^3}{3}\sin(x^3)+C$

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* Don't forget constant of integration & use initial

45. If $\dfrac{dy}{dx}=\sin x\cos^2 x$ and if $y=0$ when $x=\dfrac{\pi}{2}$, what is the value of y when x = 0? condition

    A. -1   B. 0   C. 1   D. $-\dfrac{1}{3}$ E. $\dfrac{1}{3}$

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* When definite change limits when using u-sub!

46. $\int_{0}^{3}(x+1)^{1/2}\,dx =$

    A. $\dfrac{21}{2}$ B. 7   C. $\dfrac{16}{3}$ D. $\dfrac{14}{3}$ E. $-\dfrac{1}{4}$

$\dfrac{1}{b-a}\int_{a}^{b} f(x)\,dx$

47. The average value of $\sqrt{x}$ over the interval $0 \le x \le 2$ is

    A. $\dfrac{1}{3}\sqrt{2}$ B. $\dfrac{1}{2}\sqrt{2}$ C. $\dfrac{2}{3}\sqrt{2}$ D. 1   E. $\dfrac{4}{3}\sqrt{2}$

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48. $\int_{0}^{\pi/4}\tan^2 x\,dx =$

    A. $\dfrac{\pi}{4}-1$ B. $1-\dfrac{\pi}{4}$ C. $\dfrac{1}{3}$ D. $\sqrt{2}-1$ E. $\dfrac{\pi}{4}+1$

Don't quit... Just Integrate

49. If $\int_{-2}^{2}\left(x^7+k\right)dx =16$, then k =

    A. -12   B. -4   C. 0   D. 4   E. 12