MATH 128 Quiz # 1 (Practice Version)

Bubble your answer(s) for each question 1 - 6 on the last page of the exam.

[1] **1.** $\dfrac{d}{dx}\sec(x) =$

(a) $\csc(x)$.

(b) $-\csc(x)$.

(c) $\sec(x)\tan(x)$.

(d) $\sec^2(x)$.

(e) $\tan^2(x)$.

[1] **2.** Simplifying $\dfrac{(n+2)!}{n!}$ gives:

(a) $n+2$.

(b) $(n+2)(n+1)$.

(c) $\dfrac{(n+2)(n+1)}{n}$.

(d) $\dfrac{n+2}{n}$.

(e) 2.

[1] **3.** Which of the following is a solution of the differential equation $\dfrac{dy}{dx} = \dfrac{1}{\sqrt{1-x^2}}$?

(a) $y = \arcsin(x)$

(b) $y = \arccos(x)$

(c) $y = \arctan(x)$

(d) $y = \dfrac{\sqrt{1-x^2}}{-2x}$

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[1] **4.** The equation for the second degree Taylor polynomial of $y = f(x)$ at $x = a$ is

   (a) $P_{2,a}(x) = f(x) + f'(x)(x-a) + f''(x)(x-a)^2$

   (b) $P_{2,a}(x) = f(a) + f'(x)(x-a) + \frac{f''(x)}{2}(x-a)^2$

   (c) $P_{2,a}(x) = f(a) + f'(a)(x-a) + f''(a)(x-a)^2$

   (d) $P_{2,a}(x) = f(a) + f'(a)(x-a) + \frac{f''(a)}{2}(x-a)^2$

   (e) none of the above.

[1] **5.** Expand $\displaystyle\sum_{n=0}^{2}(-1)^n x^n$.

   (a) $1 + x + x^2$.

   (b) $1 - x + x^2$.

   (c) $-1 + x - x^2$.

   (d) $0 - x + x^2$.

   (e) $0 + 1 - 2$.

[1] **6.** Which of the following can be found on Learn? Select all that apply.

   (a) A link to Odyssey to find your room and seat assignment for the quizzes.

   (b) A link to what to do if you are absent due to illness or other circumstances.

   (c) The solutions to the mid section exercises and end of sections problems in the course notes.

   (d) Information about the quizzes, midterm, and midterm rewrite.

   (e) A quick link to the course's discussion forum Piazza.

[2] **7.** Solve the initial value problem $\dfrac{dy}{dx} = x\sqrt{1 + x^2}$, $y(0) = 2$.

[2] **8.** Find all values of x satisfying $3|2x - 1| < 4$.

9. Find a formula for the n-th term of the sequence.

[2] (a) $\left\{-\dfrac{3}{2}, \dfrac{3}{5}, -\dfrac{3}{8}, \dfrac{3}{11}, \dots\right\}$

[2] (b) $\left\{\dfrac{1}{3}, \dfrac{2}{9}, \dfrac{1}{9}, \dfrac{4}{81}, \dots\right\}$

[2] **10.** Show that $\left\{\dfrac{5}{n^2 + n}\right\}_{n=1}^{\infty}$ is decreasing.

11. Determine whether the sequence converges or diverges. It is converges, find what it converges to.

[2] (a) $\left\{ \dfrac{2e^n + 3}{3e^n + 5} \right\}$

[2] (b) $\left\{ \dfrac{\ln(n + 1)}{e^{2n}} \right\}$