Math 101 **Quiz#5** **December 14, 2017**

1. Use of calculators and cell phones is NOT allowed.
2. Answers without supporting work will NOT be given credit.
3. To have full credit, you must CIRCLE your choice.

Name:
Serial:

1. The sum of the absolute maximum value and the absolute minimum value of the function $f(x) = \sin x + \cos x$ on the interval $[0, \pi]$ is

   (a) π

   (b) $-1 + \sqrt{2}$

   (c) $\frac{\pi}{4}$

   (d) $\frac{\sqrt{2}}{3}$

   (e) 1

2. The sum of all critical numbers of the function $f(x) = \frac{x^2 + 1}{\sqrt{2x + 1}}$ is

   (a) $\frac{-7}{6}$

   (b) 3

   (c) 2

   (d) $\frac{2}{3}$

   (e) $\frac{1}{3}$

3. The function $f(x) = x^4\, e^{-x}$ is

   (a) increasing on $(0, \infty)$ and decreasing on $(-\infty, 0)$

   (b) increasing on $(4, \infty)$ and decreasing on $(-\infty, 4)$

   (c) increasing on $(0, 4)$ and decreasing on $(-\infty, 0)$ and $(4, \infty)$

   (d) increasing on $(-4, \infty)$ and decreasing on $(-\infty, -4)$

   (e) increasing on $(-\infty, 0)$ and $(4, \infty)$ and decreasing on $(0, 4)$

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The End.