Math 101-46 **Quiz#2** **October 18, 2017**

1. Use of 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. If

$$f(x) = \begin{cases} a + bx, & \text{if } x > 2 \\ 3, & \text{if } x = 2 \\ b - ax^2, & \text{if } x < 2 \end{cases}$$

is a continuous function everywhere, then $2a + b =$

(a) 2

(b) -1

(c) -2

(d) 1

(e) 0

2. The equation of the tangent line to the curve $y = \dfrac{1}{\sqrt{x-1}}$ at the point with x-coordinate $x = 5$ is

(a) $y = -\dfrac{1}{16}x + \dfrac{13}{16}$

(b) $y = -x - 2$

(c) $y = -\dfrac{1}{13}x + \dfrac{1}{13}$

(d) $y = 2x - 2$

(e) $y = \dfrac{1}{2}x + \dfrac{1}{2}$

3. The function $f(x) = \dfrac{\sqrt{1+x^2} - \sqrt{1-x}}{x}$ has

   (a) Two **horizontal** asymptotes and one **vertical** asymptote

   (b) Two **horizontal** asymptotes and two **vertical** asymptotes

   (c) One **horizontal** asymptote and one **vertical** asymptote

   (d) Two **horizontal** asymptotes and NO **vertical** asymptotes

   (e) One **horizontal** asymptote and NO **vertical** asymptotes

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The End.