Math 101 **Quiz#4** **November 23, 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 equation of the **normal** line to the curve $y = x^{\sqrt{x}}$ at $x = 1$ is

   (a) $y = x$

   (b) $y = x + 1$

   (c) $y = x - 1$

   (d) $y = -x + 2$

   (e) $y = -x$

2. A particle moves according to a law of motion

   $$s(t) = t^3 - 12t^2 + 36t$$

   where t is measured in seconds and s in meters. The total distance traveled by the particle during the first 3 seconds is

   (a) $28\,m$

   (b) $53\,m$

   (c) $91\,m$

   (d) $64\,m$

   (e) $37\,m$

3. A cottage window has a shape of square with an equilateral triangle on its top. Suppose that the area of the square is changing at the rate of $\frac{8}{\sqrt{3}}\, cm^2/min$. Then the rate of change of the area of the equilateral triangle is

   (**HINT:** If each side of an equilateral triangle is equal to a, then its area= $\frac{\sqrt{3}}{4}a^2$)

   (a) $4\ cm^2/min$

   (b) $1\ cm^2/min$

   (c) $2\ cm^2/min$

   (d) $\sqrt{3}\ cm^2/min$

   (e) $1.5\ cm^2/min$

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The End.