Calculus 12 **LG 17/18 Test Version B** **/25**

Name:_____ Date:_____

1. Find the area of the region between the curves $y = x$ and $y = -2x + 8$ on the interval [0, 2]. (3 marks)

2. Find the area enclosed by the curves $y^2 = 2x + 6$ and $y = x - 1$. (3 marks)

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3. Find a vertical line $x = k$ that divides the area between $x = \sqrt{y}$ and $x = 2$ and $y = 0$ into two equal parts. (3 marks)

4. The base of a certain solid is the region enclosed by $y = x$ and $y = x^2$. Every cross section perpendicular to the x-axis is a semi-circle. Determine the volume. (3 marks)

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5. Find the volume of the solid that results when the region $y = x^2$ and $y = x + 2$ is revolved about the x-axis. (3 marks)

6. Solve the differential equation: $\frac{dy}{dx} = 4\mathrm{x} + \sin x$ (3 marks)

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7. Solve the initial value problem. $\frac{dy}{dx} = 4x^2y^2, \;\; y(1) = -1$ (3 marks)

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8. The cost of producing x tennis rackets is given by $\frac{dC}{dx} = \frac{300}{\sqrt{x}}$ per racket. Find the cost C of manufacturing 500 tennis rackets if C = $5200 when x =100. (4 marks)

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