Test Chapter 8 A.P. Calculus Name _____

Show all work on your own paper.

1. Determine what must be added to $x^2 - 10x$ to complete the square.

2. Evaluate $\int x \csc^2(2x)\,dx$

3. Evaluate $\int \sin^2(3\theta)\,d\theta$

4. Evaluate $\int \sec^3\left(\frac{x}{2}\right)\tan\left(\frac{x}{2}\right)dx$

5. Evaluate $\int \frac{dx}{x^2\sqrt{x^2+4}}$

6. Evaluate $\int \frac{dx}{\sqrt{x^2-2x-8}}$

7. Evaluate $\int \frac{x+1}{x^2(x-1)}dx$

8. Evaluate $\int \frac{x\,dx}{x+2}$

9. Use n = 4 subdivisions to approximate the value of the following integral using the trapezoidal rule:

$$\int_0^4 \sqrt{x+1}\,dx$$

10. Use n = 4 subdivisions to approximate the value of the following integral using Simpson's rule:

$$\int_1^5 \frac{dx}{\sqrt{x}}$$

11. Decompose $\dfrac{5x}{x^2-3x-4}$ into a sum of partial fractions.

12. Evaluate $\int x^2 \ln|x|\,dx$

13. Evaluate $\int \dfrac{2}{x^2-6x}\,dx$

14. Evaluate $\int \cos^{-1}(x)\,dx$

15. Evaluate $\int \sin^3(3x)\,dx$

16. Determine the volume of the solid generated when the region enclosed by $y = \tan x$, y = 1, and x = 0 is revolved about the x-axis.

Extra Credit:

Evaluate $\int \dfrac{x^3-2x+3}{x^2-2x-3}\,dx$