Calculus   Review Sheet   (Sections 7-1 - 7-6)

1. Answer each of the questions below, writing the letter corresponding to the correct answer to the left of the problem number.

2. After completing all of the problems, place the letter corresponding to each problem number in the blanks below.

_____ 1. Determine the area bounded by the curve $y = x^3 - 9x$ and the x-axis.

_____ 2. Evaluate $\int_0^1 (3x^2 - 1)^3 x\, dx$

_____ 3. Evaluate $\sum_{k=1}^{4} (k-1)^2$

_____ 4. Approximate the area under the curve $y = x^2 - 2x + 4$ between x = 1 and x = 4 by summing n = 6 inscribed rectangles of uniform width (use left endpoints).

_____ 5. Evaluate $\sum_{n=1}^{5} n(n-3)$

_____ 6. Evaluate $\int_{-2}^{0} x^2(4-x)\, dx$

_____ 7. Evaluate $\int_{1}^{12} dx$

_____ 8. Evaluate $\int_{0}^{\frac{\pi}{6}} \sin(2x)\, dx$

_____ 9. Determine the area under the graph of $y = \sqrt{9+x}$ for $-9 \le x \le 0$

_____ 10. Determine the area under the curve $y = x^2$ between x=0 and x=4 by taking the limit of the sum of the circumscribed rectangles (use right endpoint).

(OVER)

11. Prove by induction: $1 + 4 + 7 + ... (3n-2) = \dfrac{n\,(3n - 1)}{2}$

12. State the Fundamental Theorem of Calculus.

Answers:

(A) 8　　(C) $\dfrac{127}{8}$　　(D) 11　　(E) $\dfrac{64}{3}$　　(H) 28　　(I) 14　　(M) ½

(N) 18　　(O) $\dfrac{1}{4}$　　(P) $\dfrac{81}{2}$　　(R) $\dfrac{44}{3}$　　(T) $\dfrac{5}{8}$　　(U) 10　　(W) $\dfrac{5}{24}$

(I) The amount of food one of the Washington Redskins eats at a meal is called a

$\overline{1}\ \overline{6}\ \overline{8}\ \overline{1}\ \overline{8}\ \overline{6}\ \overline{2}\ \overline{3}\ \overline{8}\ \overline{9}$.

(II) What did the math teacher say when all of his students finished this worksheet early?

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