Substitution,
Summation Notation & Area

Name: _____

1. Evaluate each of the following integrals.

(a) $\int (3x - 2)^7 dx$

(b) $\int 6x^2 (2x^3 + 3)^5 dx$

(c) $\int 3t \sqrt{4 - 3t^2} dt$

(d) $\int 5 \sin^3 z \cos z dz$

(e) $\int \dfrac{6x}{(x^2 + 1)^4} dx$

(f) $\int 2w^2 \cos(4w^3) dw$

2. Evaluate each sum.

(a) $\displaystyle\sum_{k=1}^{5} k(k+2)$

(b) $\displaystyle\sum_{k=1}^{24} 5$

(c) $\displaystyle\sum_{k=2}^{5} \frac{2^k}{k}$

3. Express each sum in terms of n.

(a) $\displaystyle\sum_{k=1}^{n} (4k+3)$

(b) $\displaystyle\sum_{k=1}^{n} (k^2 + 2k + 4)$

(c) $\displaystyle\sum_{k=2}^{n} (k-2)^3$

4. Express in summation notation.

(a) $4 + 10 + 16 + 22 + \cdots + 46$

(b) $\frac{1}{5} + \frac{2}{6} + \frac{3}{7} + \frac{4}{8} + \cdots + \frac{11}{15}$

(c) $1 + \frac{x}{2} + \frac{x^2}{3} + \frac{x^3}{4} + \cdots + \frac{x^n}{n+1}$