

Name (Print) _____

1.(7.2) Use the disk method to find the volume of the solid obtained by revolving the region bounded by the graphs of $y = 4x - x^2$ and $y = 0$ about the x -axis.

2.(7.3) Use the shell method to find the volume of the solid obtained by revolving the region bounded by the graphs of $y = 2x^2 + 1$, $y = 0$, $x = 0$ and $x = 2$ about the y -axis.

3.(7.4) Find the surface area of the solid obtained by revolving the region bounded by the graphs of $y = 2\sqrt{x}$, $y = 0$ and $x = 1$ about the x -axis.

4.(7.6) Find the centroid (\bar{x}, \bar{y}) of the region bounded by the graphs of $y = 4 - x^2$ and $y = 0$ for $0 \leq x \leq 2$.

5.(9.1) Determine whether the sequence $\{a_n\}$ converges or diverges. If it converges, then find the limit.

(1) $a_n = 2 + (-2)^n$

(2) $a_n = \frac{4}{n^2 + 2n + 3}$

(3) $a_n = \frac{3n + 2}{4n - 1}$

6.(9.2) Determine whether the series converges or diverges. If it converges, then find the sum of the series.

(1) $\sum_{n=1}^{\infty} 5\left(\frac{3}{4}\right)^n$

(2) $\sum_{n=1}^{\infty} \frac{(-3)^n}{2^n}$

(3) $\sum_{n=1}^{\infty} \frac{n^2 + 1}{2n + 3}$