AP Calculus AB Name: _____

Unit 6: Integration & Accumulation of Change

6.2 Worksheet Date:_____ Period:_____

Directions: Show all work for full credit. DO NOT use a calculator for these problems, unless otherwise indicated.

For #1 – 5: Given below is a table of function values of $h(x)$. Approximate each of the following definite integrals using the indicated Riemann or Trapezoidal sum, using the indicated subintervals of equal length.

| $x$ | –3 | –1 | 1 | 3 | 5 | 7 | 9 |
|---|---|---|---|---|---|---|---|
| $h(x)$ | 5 | 2 | –3 | –7 | –2 | 6 | 11 |

1. $\int_{-3}^{1} h(x)dx$ using two subintervals and a Left Hand Riemann sum.

2. $\int_{-3}^{9} h(x)dx$ using three subintervals and a Right Hand Riemann sum.

3. $\int_{-3}^{9} h(x)dx$ using three subintervals and a Midpoint Riemann sum

4. $\int_{-3}^{3} h(x)dx$ using three subintervals and a Trapezoidal sum.

5. $\int_{-3}^{9} h(x)dx$ using six subintervals and a Trapezoidal sum.

For questions 6 and 7, approximate the definite integrals. Make a table of values showing your intervals that you used.

6. Approximate $\int_0^{\pi} (2x \sin x) dx$ using four subintervals of equal length and a Right Hand Riemann sum.

7. Approximate $\int_{-2}^{1.0} \left(e^2 x^2\right) dx$ using four subintervals of equal length and a Trapezoidal sum.

8. Given the table to the right, approximate $\int_{-2}^{9} P(x) dx$ using three subintervals and a Midpoint Riemann sum.

| $x$ | −2 | 0 | 1 | 3 | 5 | 8 | 9 |
|---|---|---|---|---|---|---|---|
| $P(x)$ | 5 | 8 | 2 | −4 | −1 | 2 | 5 |

9. Given the table to the right, approximate $\int_{-2}^{9} P(x) dx$ using six subintervals and a Trapezoidal sum.

| $x$ | −2 | 0 | 1 | 3 | 5 | 8 | 9 |
|---|---|---|---|---|---|---|---|
| $P(x)$ | 5 | 8 | 2 | −4 | −1 | 2 | 5 |