

Riemann Sums Worksheet

Calculus AB

Name: _____

Date: _____

1. $f(x) = \cos x$ on the interval $[0, \pi/2]$
 - a. Estimate the area under the curve using RRAM and 4 rectangles
 - i. Is your estimate an over estimate or under estimate?
 - b. Estimate the area under the curve using LRAM and 4 rectangles
 - i. Is your estimate an over estimate or under estimate?
2. $f(x) = 1 + x^2$ on the interval $[-1, 2]$
 - a. Estimate the area using three rectangles and RRAM; using 6 rectangles
 - b. Estimate the area using three rectangles and LRAM; using 6 rectangles
 - c. Estimate the area using three rectangles and MRAM; using 6 rectangles
3. The speed of a runner increased steadily during the first three seconds of a race. Her speed at half-second intervals is given in the table below. Find the LRAM and RRAM for the distance that she traveled during these three seconds.

| | | | | | | |
|----------|---|-----|------|------|------|------|
| t(s) | 0 | 0.5 | 1.0 | 1.5 | 2.0 | 2.5 |
| v (ft/s) | 0 | 6.2 | 10.8 | 14.9 | 18.1 | 19.4 |

- a. Find LRAM using five rectangles
- b. Find RRAM using five rectangles
- c. Find MRAM using four rectangles

Answers

1a) 0.7907 under

1b) 1.835, over

2a) 8, 6.875

2b) 5, 5.375

2c) 5.75, 5.9375

3a) 25 ft,

3b) 34.7 ft

3c) 50 ft