

Name: _____

Clear your desk of everything excepts pens, pencils and erasers. If you have a question raise your hand and I will come to you.

1. (2 points) **Multiple Choice. No work needed. No partial credit available.** Suppose we want to approximate the area under the curve $f(x) = \sin x$ over the interval $[0, \frac{\pi}{2}]$ using three rectangles of equal width. What do we get if we approximate the area under the curve using right-hand endpoints?

A. $\frac{(3+\sqrt{3})\pi}{6}$

B. $\frac{(3+\sqrt{3})\pi}{12}$

C. $\frac{(2+\sqrt{3})\pi}{12}$

D. $\frac{3+\sqrt{3}}{6}$

2. (1 point) **Fill-in-the-Blank. No work needed. No partial credit available.**

Is your answer from the preceding question an overestimate or an underestimate? _____.

Extra Work Space.

3. (2 points) Find the function $f(x)$ whose derivative is $f'(x) = \frac{3x^{\frac{3}{2}} - 5x^2}{\sqrt{x}}$ and whose graph includes the point $(1, 4)$.