Question

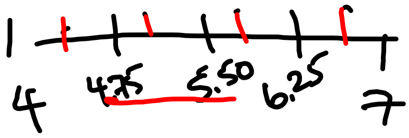
List the evaluation points corresponding to the midpoint of each subinterval to three decimal places, sketch the function and approximating rectangles and evaluate the Riemann sum to six decimal places if needed.

$f(x) = x^2 + 4$ $[4, 7]$, $n = 4$.

Give your answer in an ascending order.

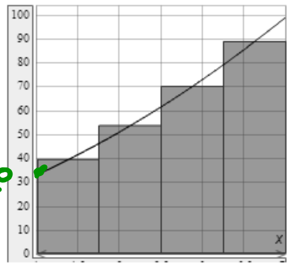
Evaluation points: 4.375, 5.125, 5.875 and 6.625.

4.375 5.125 5.875 6.625

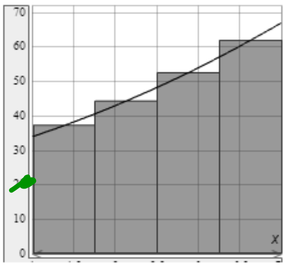


$$\frac{7-4}{4} = \frac{3}{4}$$

A.



B.



sum(seq(x^2+4, X, 4.375, 6.625, .75))* .75

Evaluate $\int \frac{\sin x}{\sqrt{\cos x}}\, dx$.

$$\int \frac{\sin x}{\sqrt{\cos x}}\, dx = \boxed{} + c$$

$-2(\cos x)^{1/2}$

$-2u^{1/2} + c$

$u = \cos x$

$du = -\sin x\, dx$

$$-\int \frac{1}{\sqrt{u}}\, du$$

$$-\int u^{-1/2}\, du = -\frac{u^{1/2}}{1/2} + c$$

$$\int \frac{3\sin x}{\sqrt{\cos x}}\,dx = -6\left(\cos(x)\right)^{\frac{1}{2}} + c$$ ✗

$\cos^{1/2}(x)$

$(\cos x)^{1/2}$

Question

Write the (total) area between the $y = 5x^2 + 1$ and the x-axis for $0 \le x \le \pi$ as an integral or sum of integrals.

$$\int_0^{\pi} \boxed{5x^2+1}\,dx$$

Question

Find the position function $s(t)$ given the acceleration function and an initial value.
$a(t) = 10 - t$, $v(0) = 6$, $s(0) = 0$

$s(t) =$ ☐

$$y'' = 10 - t$$

$$y' = \int 10 - t \, dt$$

$$v = y' = 10t - \frac{t^2}{2} + C$$

$$v(0) = 6 = 10(0) - \frac{0^2}{2} + C =$$

$$s' = v = 10t - \frac{t^2}{2} + 6$$

$$s = \int 10t - \frac{t^2}{2} + 6 \, dt$$

$$= \frac{10t^2}{2} - \frac{t^3}{6} + 6t + C$$

$$s(0) = 0 = 0 - 0 + 0 + C \rightarrow C = 0$$

$$\boxed{s = 5t^2 - \frac{t^3}{6} + 6t}$$