$f(x)$ is even with domain $[-8,8]$

$$f(x)=\begin{cases}3, 0 \le x \le 4 \\ 15-3x, 4 < x \le 6 \\ 3-x, 6 < x \le 8\end{cases}$$

$$a)\int_{4}^{6} f(x)\,dx =$$

$$b)\int_{-3}^{6} f(x)\,dx =$$

$$c)\int_{-8}^{8} f(x)\,dx =$$

$$\int_{-3}^{3} \sqrt{9 - x^2}\, dx$$

$$\int_{0}^{6} \sqrt{x^2 - 6x + 9}\, dx$$

$$\int_{-3}^{4} \left| x - 2 \right| dx$$

$$\int_0^4 t\,dt =$$

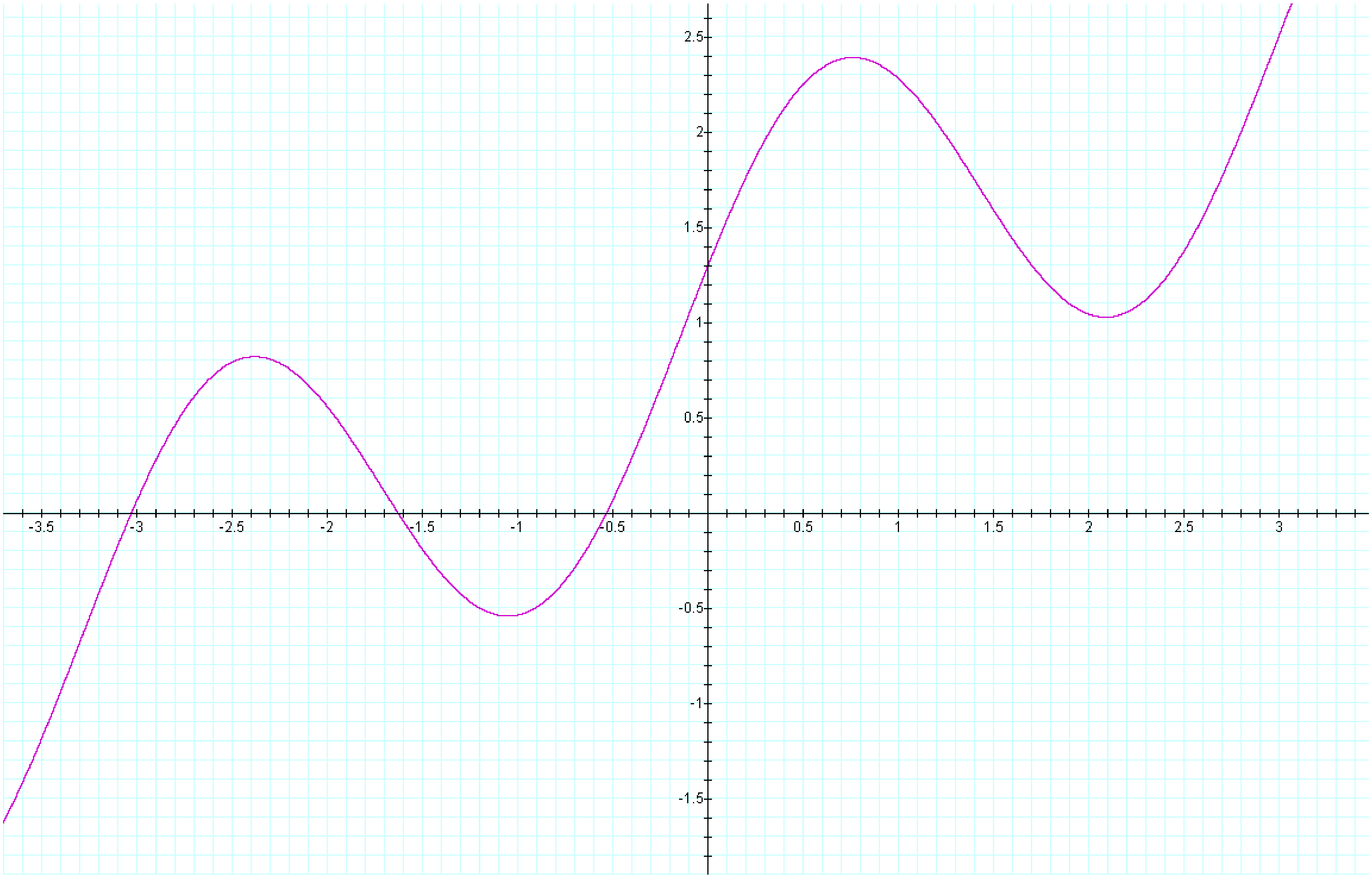
$$\int_3^5 t\,dt =$$

$$\int_0^{-3} t\,dt =$$

$$\int_{-2}^{-7} t\,dt =$$

$$\int_0^x t\,dt =$$

$$\int_3^x t\,dt =$$


2.5
2
1.5
1
0.5
-0.5
-1
-1.5
-3.5
-3
-2.5
-2
-1.5
-1
-0.5
0.5
1
1.5
2
2.5
3

$$F(x) = \int_1^x \left(t^3 + t^2 + t + 1\right) dt$$

Determine $F'(3)$

$$f(x) = \tan(x)$$

Find the area under between the x axis and the line

$$x = \frac{\pi}{3}$$

$$f(x) = 12x - 2x^2 - 6$$

Find the average value of f(x) on the interval [1,5]

$$g(x) = \int_1^x \frac{t^2 - 5t + 4}{t^2 + 4} dt$$

Determine all critical points of g and identify them as maxima, minima or terrace points.

Determine

$$\lim_{x\to\infty}\left(\frac{\int_1^x \ln\left(t^2\right)dt}{x\ln\left(x\right)}\right)$$

$$\int \cos(x)\left(1+\sin^3(x)\right)^2 dx$$

$$\int \frac{x\,dx}{1+x^2}$$

$$\int \frac{dx}{1+x^2}$$

$$\int \frac{x^2 + 1}{x^2} dx$$

$$\int \frac{x^2 dx}{1+x^2}$$

`

$$\int \sin^3(y)\,dy$$

$$\int \frac{\ln(x)\,dx}{\sqrt{x}}$$

$$\int \frac{z}{z+1} dz$$

$$\int x^2 \sqrt{1 - x^3}\, dx$$

$$\int_2^3 \frac{x^2}{1-x^3}\,dx$$

$$\int_0^a \sec^2(x)\tan(x)\,dx$$

$$\int_0^{\frac{\pi}{2}} \frac{\sin^3(w)}{\sin^2(w)+\cos^2(w)}\,dw$$

$$\int \sin(x)\cos(x)\,dx$$

Estimate $\int_0^2 \left(5 - x^2\right) dx$ with five subintervals using left sum, right sums, midpoint sums and trapezoid sums. Compare your answers with the exact value.

Evaluate the following Riemann sum

$$\lim_{n\to\infty}\left(\left(\frac{1}{n}\right)\sum_{k=1}^{n}\left(\frac{k}{n}\right)^{5}\right)$$

Find the area under the graph of $f(x) = \frac{e^x}{1+e^{2x}}$

from $x = 0$ to $x = \frac{1}{2}\ln(3)$.

The rectangle with base extending

from 0 to $x = \frac{1}{2}\ln(3)$ and having

height $y = f(c)$ has the same area as the region in the previous problem.

Find c.

$$a)\int\left(\frac{x+1}{x}\right)dx$$

$$b)\int\left(\frac{x}{x+1}\right)dx$$

$$\int\left(8x^2\sqrt{5-4x^3}\right)dx$$

$$\lim_{n\to\infty}\frac{1}{n}\sum_{k=1}^{n}\cos\left(\frac{k\pi}{3n}\right)$$

$$g(x) = \int_{3}^{4x^3} \left(\frac{t^2 + 1}{e^t} \right) dt$$

On what intervals is g increasing?

Find both values of c guaranteed by the two mean value theorems for the function $f(x) = \sin(x)$ on the interval $\left(0, \frac{\pi}{2}\right)$

$$f(x)=\int_{x}^{x^2}\ln(t)\,dt$$

Determine $f'(x)$

Evaluate

$$\lim_{n\to\infty}\left(\frac{1}{n}\sum_{k=1}^{n}\left(\tan\left(\frac{k\pi}{4n}\right)\right)\right)$$