5.8: 1, 2, 5, 6, 10, 19, 20, 27, 32

5.9: 1, 2, 4, 6, 9, 12, 16, 18, 19

5.10: 1, 2, 3, 5, 7, 11, 13, 15, 19, 21, 25, 26, 33, 37, 39, 45

5.8:

1:
$\int \tan^3 \pi x \, \mathrm{d}x = \frac{1}{2} \tan^2 \pi x - \ln |\pi x| + C$

2:
$\int \mathrm{e}^{2\theta} \sin 3\theta \, \mathrm{d}\theta = \frac{\mathrm{e}^{2\theta}}{13} \cdot (2 \sin 3\theta - 3 \sin 3\theta)$

5.9:

1:

a: $L_2 = 7, R_2 = 12, M_2 = 9$

b: $Under, over, under$

c:

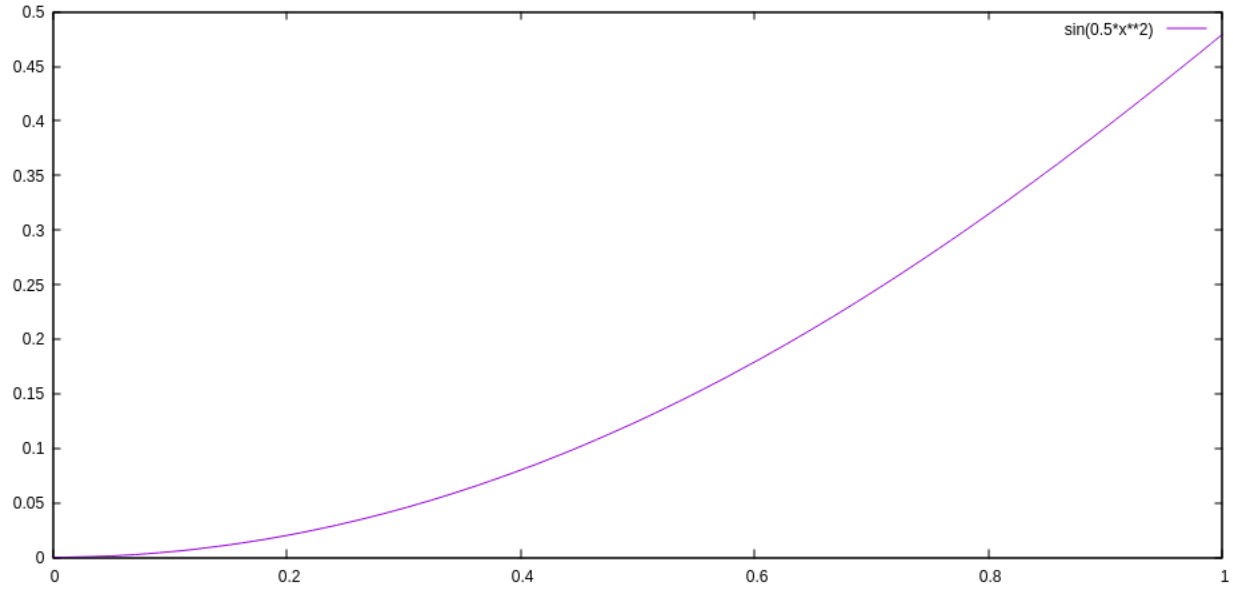
d: L_n, T_n, M_n, I, R_n

2:

a: Left produced .9540, right produced .7811, trapezoidal produced .8632, and midpoint produced .8675

b: .8632 and .8675

4:



a: Respectively, under, over, under, over

b: L_n, M_n, T_n, R_n

c: T_5

6:
$\int_0^\pi x \cos x \, \mathrm{d}x, n = 4$
M_4 :
$\Delta x = \frac{\pi}{4}$
$\frac{\pi}{4} \cdot \sum_{i=1}^{4} (\sin(\frac{1}{2} \cdot \frac{\pi}{4})) = \frac{\sqrt{2-\sqrt{2}} \cdot \pi}{2}$
≈ 1.20224

S_4 :
$x_0 = 0, x_1 = \pi/4, x_2 = \pi/2, x_3 = 3\pi/4, x_4 = \pi$
$\frac{\frac{\pi}{4}}{3}[\sin(0) + 4\sin(\frac{\pi}{4}) + 2\sin(\frac{\pi}{2}) + 4\sin(\frac{3\pi}{4}) + \sin(\pi)]$

1 5.10:

$\int_1^\infty \frac{1}{x^p}\,\mathrm{d}x$ is convergent if $p > 1$ and divergent if $p \leq 1$

1:

a: Goes to infinity

b: Vertical asymptope

c: Vertical asymptope

d: Negative infinity

2:
(c), infinity

3:
Pretty much 0.5.

5:
Convergent.
$\int_3^\infty \frac{1}{(x-2)^{\frac{3}{2}}}\,\mathrm{d}x$
$\lim_{t\to\infty} \int_3^t \frac{1}{(x-2)^{\frac{3}{2}}}\,\mathrm{d}x$
$\int \frac{1}{(x-2)^{\frac{3}{2}}}\,\mathrm{d}x = \frac{-2}{\sqrt{x-2}}$
$= -2$

7:
divergent

11:
divergent

13:
convergent, $= 0$

15:
divergent

19:
divergent

21:
convergent, $= \frac{\pi}{9}$

25:
divergent

26:
convergent, $= 2$

33:
convergent, $= \frac{8 \cdot (3 \cdot \ln 2 - 1}{9}$