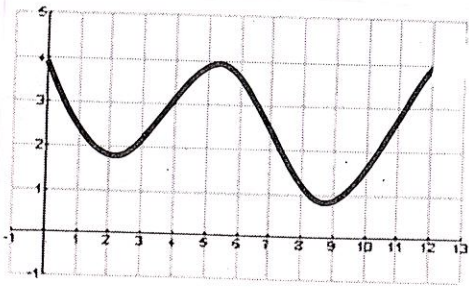
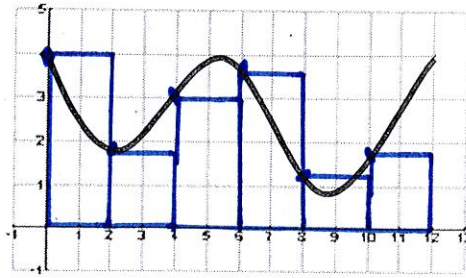


Approximate the area using 6 Left Rectangles



Approximate the area using 6 Left Rectangles



$$\text{width} = \frac{12-0}{6} = 2$$

Top left part of rectangle touches your function

$$A = w \cdot l$$

$$\approx 2 [4 + 1.75 + 3 + 3.5 + 1.25 + 1.75] \approx 30.5$$

Approximate the area using 3 Right Rectangles

$$f(x) = x^2 + 1, [0, 3]$$

Approximate the area using 3 Right Rectangles

$$f(x) = x^2 + 1, [0, 3]$$

$$\text{width} = \frac{3-0}{3} = 1$$

$$A = w \cdot l$$

$$\approx 1 [f(1) + f(2) + f(3)]$$

$$\approx 1 [2 + 5 + 10] \approx 17$$

Remember

R - first $f(\ddot{u})$

\ddot{u} = start + width

L - first $f(\ddot{u})$

\ddot{u} = start

M - first $f(\ddot{u})$

$\ddot{u} = \frac{1}{2}(\text{width}) + \text{start}$

t (sec)	0	3	6	9	12	15	18	21	24
v (m/sec)	11	15	18	20	16	15	20	22	25

Approximate the area using 4 Midpoint Rectangles

t (sec)	0	3	6	9	12	15	18	21	24
v (m/sec)	11	15	18	20	16	15	20	22	25

Approximate the area using 4 Midpoint Rectangles

$$\text{width} = \frac{24-0}{4} = 6$$

$$A_{\text{rectangle}} = w \cdot l$$

$$\approx 6 [15 + 20 + 15 + 22]$$

$$\approx 432$$