

Subinterval	[0, 1]	[1, 2]	[2, 3]	[3, 4]
Midpt m_i	0.5	1.5	2.5	3.5
Height $f(m_i)$	1.25	3.25	7.25	13.25
Area $(1)(h)$	1.25	3.25	7.25	13.25
Total	= 25			

⑦ $y = 2x - x^2 \quad 0 \leq x \leq 2$ and x-axis

①



Ht:

$$f(0) = 0$$

$$f\left(\frac{1}{2}\right) = 2\left(\frac{1}{2}\right) - \left(\frac{1}{2}\right)^2 = \frac{3}{4}$$

$$f(1) = 2(1) - 1^2 = 1$$

$$f\left(\frac{3}{2}\right) = \frac{3}{4}$$

⑧ RRAM



each base = $\frac{1}{2}$ Ht $f\left(\frac{1}{2}\right) = \frac{3}{4}$
 $f(1) = 1$
 $f\left(\frac{3}{2}\right) = \frac{3}{4}$
 $f(2) = 0$

⑥ LRAM 4 Rectangles (4 subintervals)

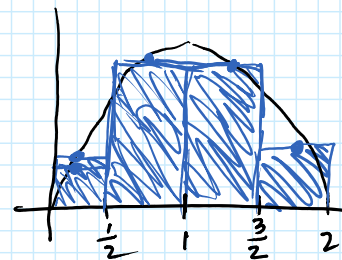
each base = $\frac{1}{2}$

$$\text{Area} = \frac{1}{2} \left(0 + \frac{3}{4} + 1 + \frac{3}{4} \right)$$

$$= \frac{1}{2} \left(\frac{5}{2} \right) = \boxed{\frac{5}{4}}$$

$$A = \frac{1}{2} \left(\frac{3}{4} + 1 + \frac{3}{4} + 0 \right) = \boxed{\frac{5}{4}}$$

MRAM



Ht:

$$f\left(\frac{1}{4}\right) = .4375$$

$$f\left(\frac{3}{4}\right) = .9375$$

$$f(1.25) = .9375$$

$$f(1.75) = .4375$$

each base = $\frac{1}{2}$

$$A = \frac{1}{2} (.4375 + .9375 + .9375 + .4375)$$

$$= \boxed{1.375}$$

①⑦ LRAM: $A = 2(f(2)) + 2(f(4)) + 2(f(6)) + \dots + 2(f(20)) + 2(f(22))$

$$= 2(0 + .6 + 1.4 + \dots + 1.0 + .5)$$

OR $= \boxed{44.8}$

RRAM: $A = 2(f(4)) + 2(f(6)) + \dots + 2(f(20)) + 2(f(22)) + 2(f(24))$

$$= 2(0.6 + 1.4 + \dots + 1.0 + 0.5 + 0)$$
$$= \boxed{44.8}$$

$$(19) \text{ (a) LRAM} = 300(1 + 1.2 + 1.7 + \dots + 1.5 + 1.2) = 5220 \text{ meters}$$

$$(b) \text{ RRAM} = 300(1.2 + 1.7 + \dots + 1.5 + 1.2 + 0) = 4920 \text{ meters}$$

$$\Delta t = 5 \text{ min} (60) = 300 \text{ seconds}$$