1. a) units - ft
Indicates total distance traveled

b) Intervals: (10, 30) (30, 50), (50, 70]

Midpoint

x	y
20	22
40	35
60	44
	101

$M(3) = (101)20 = 2020$

↑ width

2. a) $T'(7) = \frac{55-62}{8-6} = -\frac{7}{2}$ °C/min

b) $\frac{1}{8}\int_0^8 T(x)\,dx$

$T(n) = \frac{1}{2}(100+93)1 + \frac{1}{2}(93+70)4 + \frac{1}{2}(70+62)1 + \frac{1}{2}(62+55)2$

$= 605.5$

$\frac{1}{8}(605.5) = 75.69$

Because the subintervals are not equal, we have to find the area of each trapezoid.

3 (0.1, 0.2) (0.2, 0.3) (0.3, 0.4) (0.4, 0.5)
(0.5, 0.6) (0.6, 0.7) (0.7, 0.8) (0.8, 0.9) (0.9, 1)

$$\frac{0.1}{2}\Big(22 + 2(28) + 2(32) + 2(34) + 2(34) + 2(32) + 2(28) + 2(22) + 2(14) + 4\Big)$$

237 units^2

4. $\frac{1}{2}[0 + 2(50) + 2(60) + 2(80) + 2(90) + 2(100) + 2(95) + 2(85) + 2(80) + 2(75) + 85]$

$\frac{1}{2}[1515]$ mph · min

$\frac{757.5}{60}$ = 29.29 miles ← convert to minutes

5 $\int_{-2}^{2} 4 - x^2$

LRAM	MRAM	RRAM
$f(-2) = 0$	$f(-1.5) = 1.75$	$f(-1) = 3$
$f(-1) = 3$	$f(-0.5) = 3.75$	$f(0) = 4$
$f(0) = 4$	$f(.5) = 3.75$	$f(1) = 3$
$f(1) = 3$	$f(1.5) = 1.75$	$f(2) = 0$
(10)1	(11)1	10 units^2
13 units^2	11 units^2	

5.
TRAM

$\frac{1}{2}[0 + 2(3) + 2(4) + 2(3) + 0]$

$\frac{1}{2}[4 + 8 + 6]$

$\frac{1}{2}(20)$

10

6. a) LRAM

$f(0) = 0$
$f(1) = 6$
$f(2) = 10$
$f(3) = 16$
$f(4) = 14$
$f(5) = 12$
$f(6) = 18$
$f(7) = 22$
$f(8) = 12$
$f(9) = 4$

(116) 1

116 units

b) RRAM

$f(1) = 6$
$f(2) = 10$
$f(3) = 16$
$f(4) = 14$
$f(5) = 12$
$f(6) = 18$
$f(7) = 22$
$f(8) = 12$
$f(9) = 4$
$f(10) = 2$

(118) 1

1/6 118 inches

7. $(4.3)(1.2) + (3.1)(1.1) + (2.2)(1.5) + (1.5)(1.6)$

14.29

B

8. $\frac{1}{8}[24 + 76 + 106 + 124 + 135]5$

93°C

9. $\frac{1}{2}[0 + 2(6) + 2(10) + 2(16) + 2(14) + 2(12) + 2(18) + 2(22) + 2(12) + 2(4) + 2]$

$= 115$ inches

10. $\frac{1}{2}[4 + 2(1) + 2(0) + 2(1) + 4]$

$= 6$

11. $\frac{1}{2}[10 + 20]3 + \frac{1}{2}[20 + 40]2 + \frac{1}{2}[40 + 30]$

D

12.a) $R'(45) = \frac{55 - 40}{50 - 40} = \frac{15}{10} = 1.5 \frac{\text{gallons}}{\text{min}^2}$

b) (0,30) (30,40), (40,50) (50,70) (70,90)

LRAM

$(20)(30) + (30)(10) + (40)(10) + 55(20) + 65(20)$

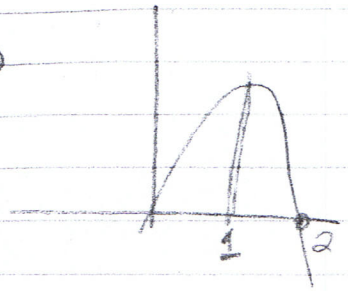
3700 Gallons

Yes Because the function is increasing on its domain and the rectangles would be encircled

13. Omit. A, D

14. A

15.



LRAM

$f(1) = 1$
$f(1.25) = .9375$
$f(1.5) = .75$
$f(1.75) = .4375$
$(3.125)(.25)$

$A = .78125$

RRAM

$f(1.25) = .9375$
$f(1.50) = .75$
$f(1.75) = .4375$
$f(2.0) = 0$
$(2.125)(.25)$

$A = .53125$

TRAM

$\frac{.25}{2}[1 + 2(.9375) + 2(.75) + 2(.4375) + 0]$

$\frac{.25}{2}[5.25]$

$A = .65625$

MRAM

$.25[.98438 + .85938 + .60938 + .23438]$
$.67188$