3-0235 — 50 SHEETS — 5 SQUARES
3-0236 — 100 SHEETS — 5 SQUARES
3-0237 — 200 SHEETS — 5 SQUARES
3-0137 — 200 SHEETS — FILLER
COMET

2) a.i $L_6 = 2\cdot 9 + 2\cdot 8.8 + 2\cdot 8.2 + 2\cdot 7.3 + 2\cdot 6 + 2\cdot 4$
$= 2(9 + 8.8 + 8.2 + 7.3 + 6 + 4)$
$= 86.6$

ii $R_6 = L_6 - (2\cdot 9) + (2\cdot 1)$
$= 70.6$

iii $M_6 = 2(8.9 + 8.5 + 7.8 + 6.6 + 5.1 + 2.8)$
$= 79.4$

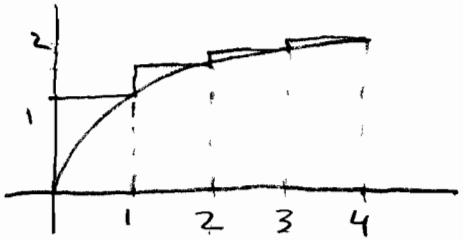
b. Overestimate because $f(x)$ is decreasing

c. Underestimate because $f(x)$ is decreasing

d. M_6 because area of rectangle appears to be closer to the true area

4) $f(x) = \sqrt{x}$

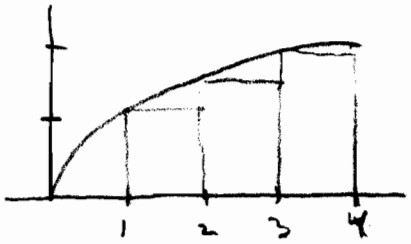
a.



$R_4 = 1\cdot(f(x_1) + f(x_2) + f(x_3) + f(x_4))$
$= 1\cdot(\sqrt{1} + \sqrt{2} + \sqrt{3} + \sqrt{4})$

$R_4 \approx 6.146$ overestimate since $f(x)$ is increasing

b.



$L_4 = 1\cdot(\sqrt{0} + \sqrt{1} + \sqrt{2} + \sqrt{3})$
≈ 4.146 underestimate because $f(x)$ increasing

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8) see attached

11) $V(t)$ is increasing, thus lower estimate obtained from L_n and upperestimate from R_n

$L_6 = \frac{1}{2}(0 + 6.2 + 10.8 + 14.9 + 18.1 + 19.4)$

$= 34.7$ ft lower estimate

$R_6 = \frac{1}{2}(6.2 + 10.8 + 14.9 + 18.1 + 19.4 + 20.2)$

$= 44.8$ ft upper estimate

16) Since $V(t)$ is increasing, L_6 is an under estime & R_6 is an over estimate, so we will use M_6.

Note that velocity is in Km/hour and t is in seconds, so we need to convert Δt to hours.

$\Delta t = 5\text{sec} = \frac{5}{3600}\text{hr} = \frac{1}{720}\text{hr}$

$M_6 = \frac{1}{720}(30 + 68 + 90 + 102 + 112 + 118)$

$\approx .72\overline{2}$ km

17) $f(x) = \sqrt[4]{x}$

$A = \lim_{n\to\infty} R_n = \lim_{n\to\infty} \Delta x\left[f(x_1) + f(x_2) + \dots + f(x_n)\right]$

$\Delta x = \frac{16-1}{n} = \frac{15}{n}$

$= \lim_{n\to\infty} \sum_{i=1}^{n} \frac{15}{n} f(x_i)$

$x_i = 1 + i\cdot\Delta x$

$= 1 + \frac{i\cdot 15}{n} = 1 + \frac{15i}{n}$

$f(x_i) = \sqrt[4]{1 + \frac{15i}{n}}$

$\therefore \boxed{A = \lim_{n\to\infty} \sum_{i=1}^{n} \frac{15}{n}\sqrt[4]{1 + \frac{15i}{n}}}$