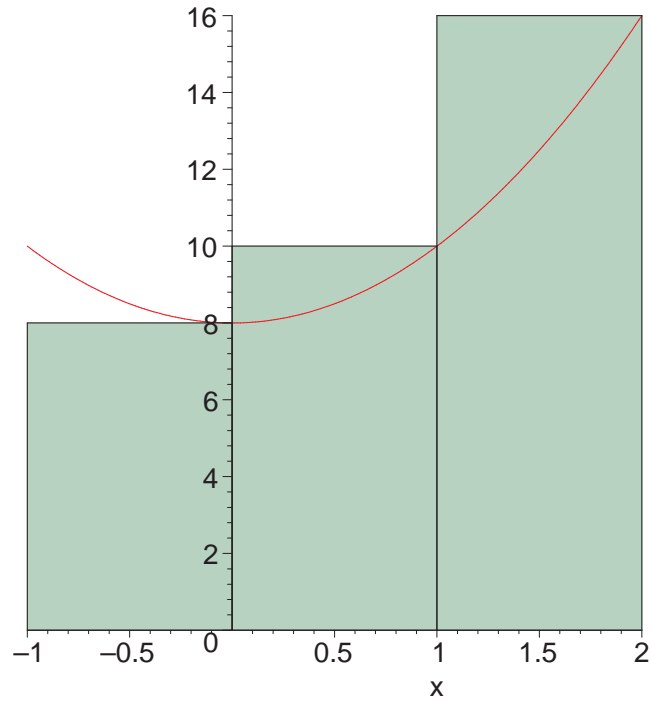
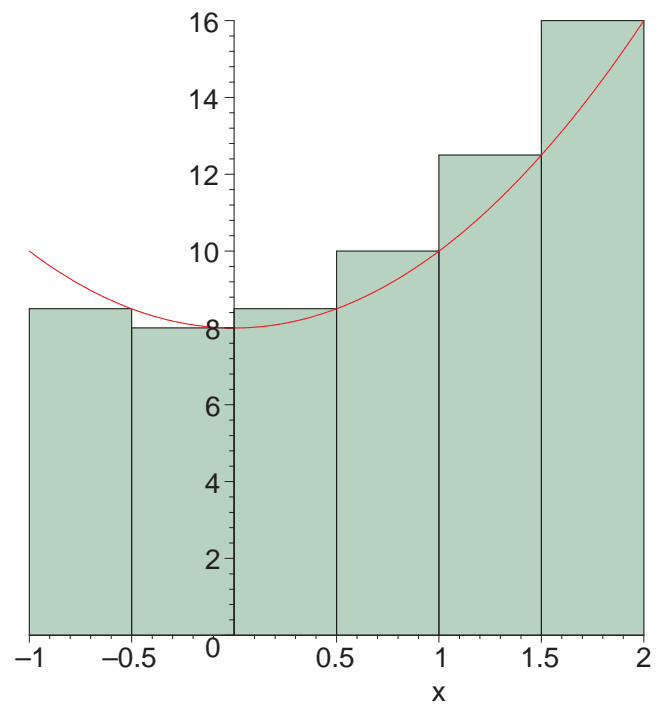


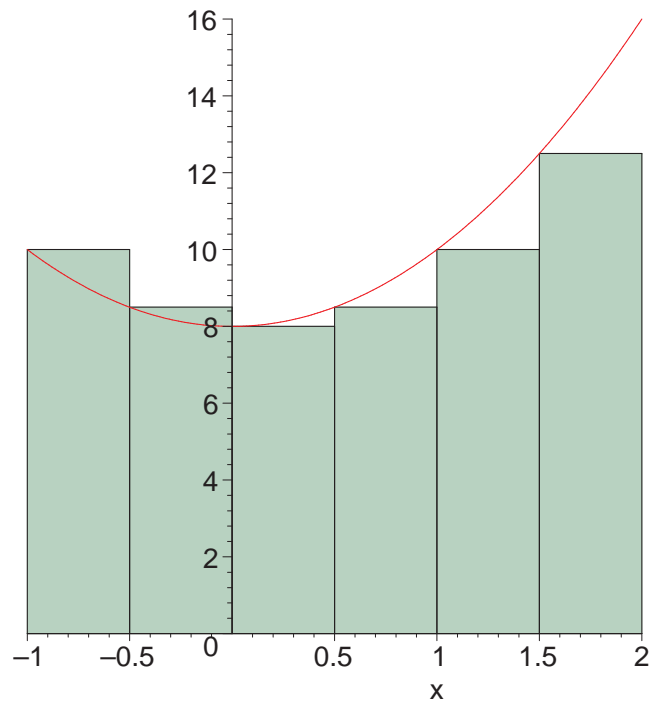
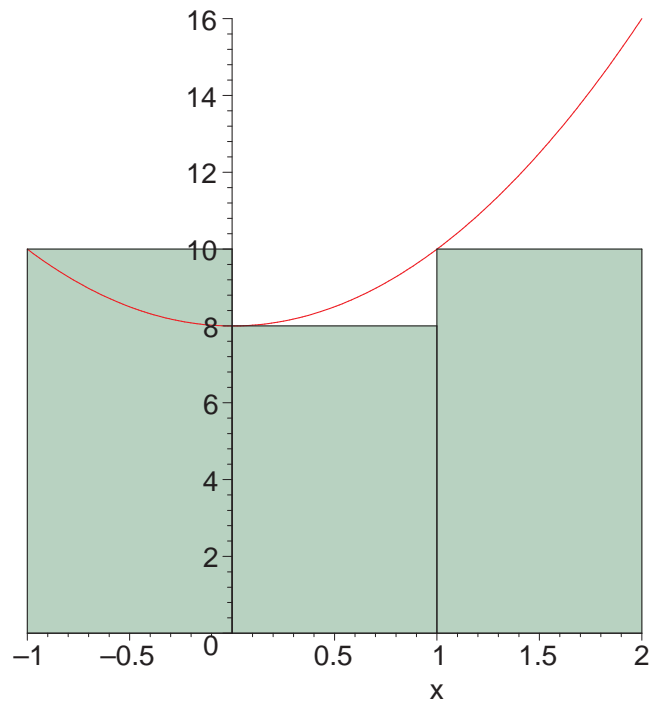
(a) $f(x) = 8 + 2x^2$ and $\Delta x = \frac{2 - (-1)}{3} = 1 \Rightarrow$
 $R_3 = 1 \cdot f(0) + 1 \cdot f(1) + 1 \cdot f(2) = 1 \cdot 8 + 1 \cdot 10 + 1 \cdot 16 = 34.$
 $\Delta x = \frac{2 - (-1)}{6} = 0.5 \Rightarrow$
 $R_6 = 0.5[f(-0.5) + f(0) + f(0.5) + f(1) + f(1.5) + f(2)]$
 $= 0.5(8.5 + 8 + 8.5 + 10 + 12.5 + 16)$
 $= 0.5(63.5) = 31.75$





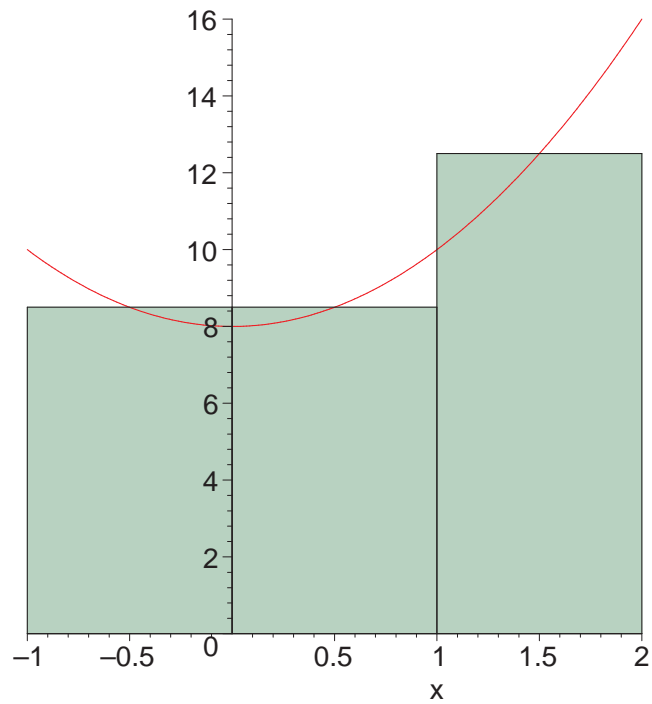
$$(b) \quad L_3 = 1 \cdot f(-1) + 1 \cdot f(0) + 1 \cdot f(1) = 1 \cdot 10 + 1 \cdot 8 + 1 \cdot 10 = 28$$

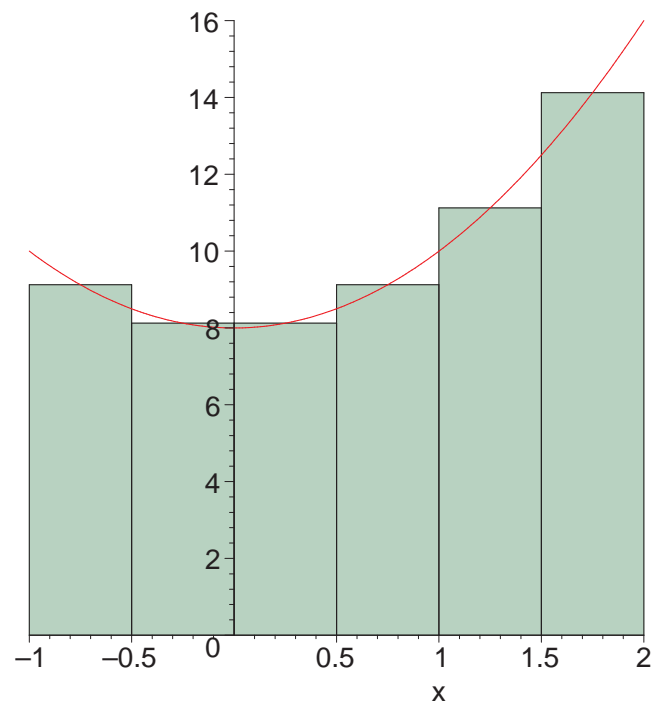
$$\begin{aligned} L_6 &= 0.5[f(-1) + f(-0.5) + f(0) + f(0.5) + f(1) + f(1.5)] \\ &= 0.5(10 + 8.5 + 8 + 8.5 + 10 + 12.5) \\ &= 0.5(57.5) = 28.75 \end{aligned}$$



$$(c) \quad M_3 = 1 \cdot f(-0.5) + 1 \cdot f(0.5) + 1 \cdot f(1.5) = 1 \cdot 8.5 + 1 \cdot 8.5 + 1 \cdot 12.5 \\ = 29.5.$$

$$M_6 = 0.5[f(-0.75) + f(-0.25) + f(0.25) + f(0.75) + f(1.25) + f(1.75)] \\ = 0.5(9.125 + 8.125 + 8.125 + 9.125 + 11.125 + 14.125) \\ = 0.5(59.75) = 29.875$$





(d) M_6 appears to be the best estimate.