1.1.2. Memory requirements of a halfedge data structure

a) $M(v) = 20B \cdot v + 8B \cdot f + 8B \cdot e + 32B \cdot 2e$

$= 20B \cdot v + 8B \cdot 2v + 8B \cdot 3v + 32B \cdot 2 \cdot 3v$

$= \underline{\underline{252B \cdot v}}$

b) $e = \frac{1}{2} \cdot 4f$

$\frac{1}{2}$: to avoid double counting

4: 4 edges per quad

Eulers formula: $v - e + f = 0$

$e = 2f \Rightarrow \underline{\underline{e = 2v}}$

$v - 2f + f = 0$

$v - f = 0$

$v = f$

c) $M(v) = 20B \cdot v + 8B \cdot f + 8B \cdot e + 32B \cdot 2e$

$= 20B \cdot v + 8B \cdot v + 8B \cdot 2v + 32B \cdot 4v$

$= \underline{\underline{172B \cdot v}}$