1.15 a. $t_{org} = 0.5 t_{new} + 0.5 \times 10 t_{new} = 5.5 t_{new}$

加速比 $S = \frac{t_{org}}{t_{new}} = 5.5$

b. 设原执行时间比例为 x

$1 - x = x/10$

$\Rightarrow x = 0.91$

1.16 a. $Speedup = \frac{1}{1 - f + \frac{f}{S}} = \frac{1}{1 - 0.2 + \frac{0.2}{2}} = 1.11$

b. $t_{new} = t_{org} \times (0.15 + \frac{0.2}{2} + 0.7)$

$Speedup' = \frac{t_{org}}{t_{new}} = 1.05$

c. $P_{float} = \frac{0.2/2 \times t_{org}}{t_{org} \times (0.15 + 0.1 + 0.7)} = 0.105$

浮点运算占 10.5%

$P_{缓存} = \frac{0.15 \times t_{org}}{t_{org} \times (0.15 + 0.1 + 0.7)}$

$= 0.158$

缓存占 15.8%