Burke Begin
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BB

1)
CPI = 5

a) $4.10^7 . 5 . \frac{1}{4.10^9} =$

Instruction count x CPI x clock time =

(Assumed memory stage needs one cycle!)

b) $T = 4.10^7 . \left(5 . \frac{70}{100} + 1 . \frac{30}{100}\right) . \frac{1}{4.10^9} = 4.10^7 . 3,8 . \frac{1}{4.10^9} = \frac{3,8}{100} = \underline{0,038s} = 38ms$

$DataT = \frac{30}{100} . \frac{8}{100} . 80 = \frac{192}{100} = 1,92$

$InstT = \frac{2}{100} . 40 = 0,8$

CPI + 1,92 + 0,8 = 7,72

New CPI = 7,72 , $T = 4.10^7 . 7,72 . \frac{1}{4.10^9} = \frac{7,72}{10^2} = \underline{0,0772s}$

$= 77,2ms$

Note: For part a it would be 5 instead of "$\left(5 . \frac{70}{100} + 1 . \frac{30}{100}\right)$" in the equation if we wouldn't assume memory stage as one cycle. The result would be 0,05s (50ms) then.