Soal No 7

Diketahui :
- memory access (**ma**) = **200 ns**
- **page fault time** = **10 ms**
- probabilitas (**p**) = Terdapat **10.000 ma** terdapat **10 page fault**

Ditanya :
- Effective access time atau (EAT)

Rumus :
- EAT = ((1-**p**) x **ma**) + (**p** x **page fault time**)

Dijawab :

- EAT = ((1-**p**) x **ma**) + (**p** x **page fault time**)

Pertama, Masukkan Rumus

Dijawab :

- EAT = ((1-p) x ma) + (p x page fault time)
- EAT = ((1-p) x 200 ns) + (p x 10 ms)

Untuk variabel p jangan di masukkan nilainya dulu tapi disederhanain dulu biar gampang dan g susah

Kedua, Masukkan nilai yang diketahui kedalam Rumus

Diketahui :
- memory access (ma) = 200 ns
- page fault time = 10 ms
- probabilitas (p) = Terdapat 10.000 ma terdapat 10 page fault

Dijawab :

- EAT = ((1-**p**) x **ma**) + (**p** x **page fault time**)

- EAT = ((1-**p**) x **200 ns**) + (**p** x **10 ms**)

Ketiga, Samakan satuan waktu ma dan page fault time menjadi nanosecond (ns)

ma = 200 nanosecond (ns)
page fault time = 10 milisecond (ms)

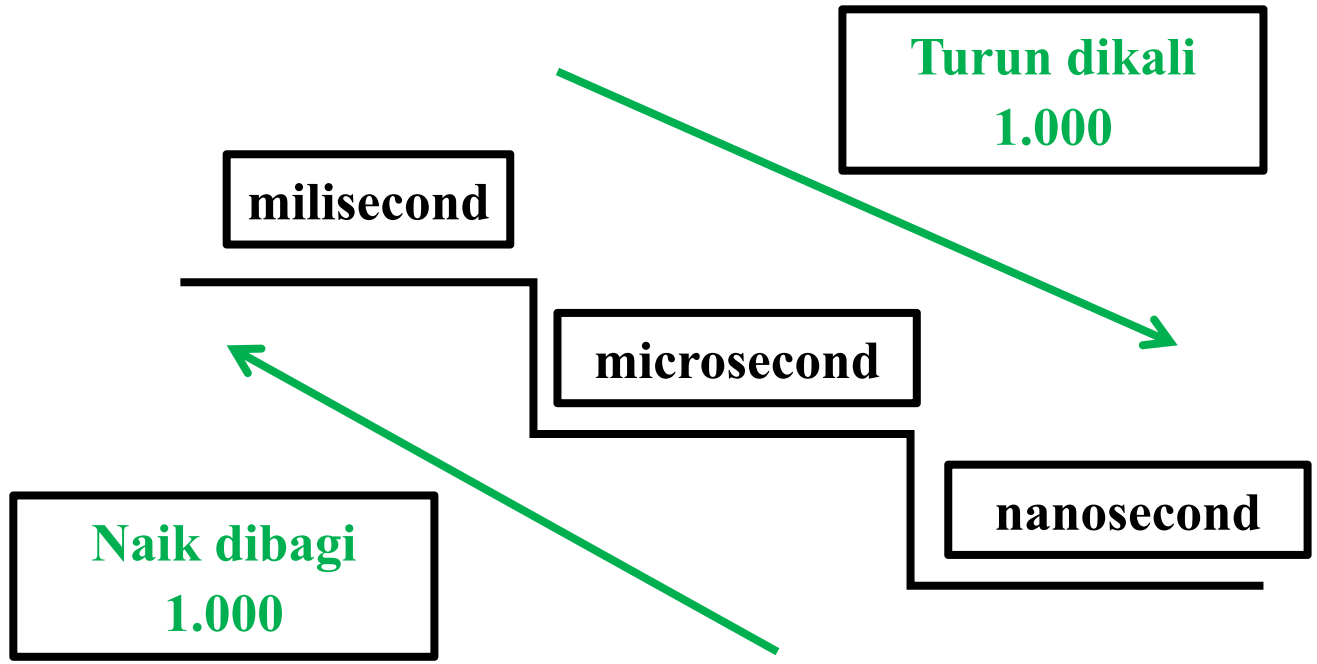
Dijawab :

- EAT = ((1-p) x ma) + (p x page fault time)
- EAT = ((1-p) x 200 ns) + (p x 10 ms)

Ketiga, Samakan satuan waktu ma dan page fault time menjadi nanosecond (ns)

ma = 200 nanosecond (ns)
page fault time = 10 milisecond (ms)

Karena ma sudah nanosecond maka tinggal mengubah page fault time



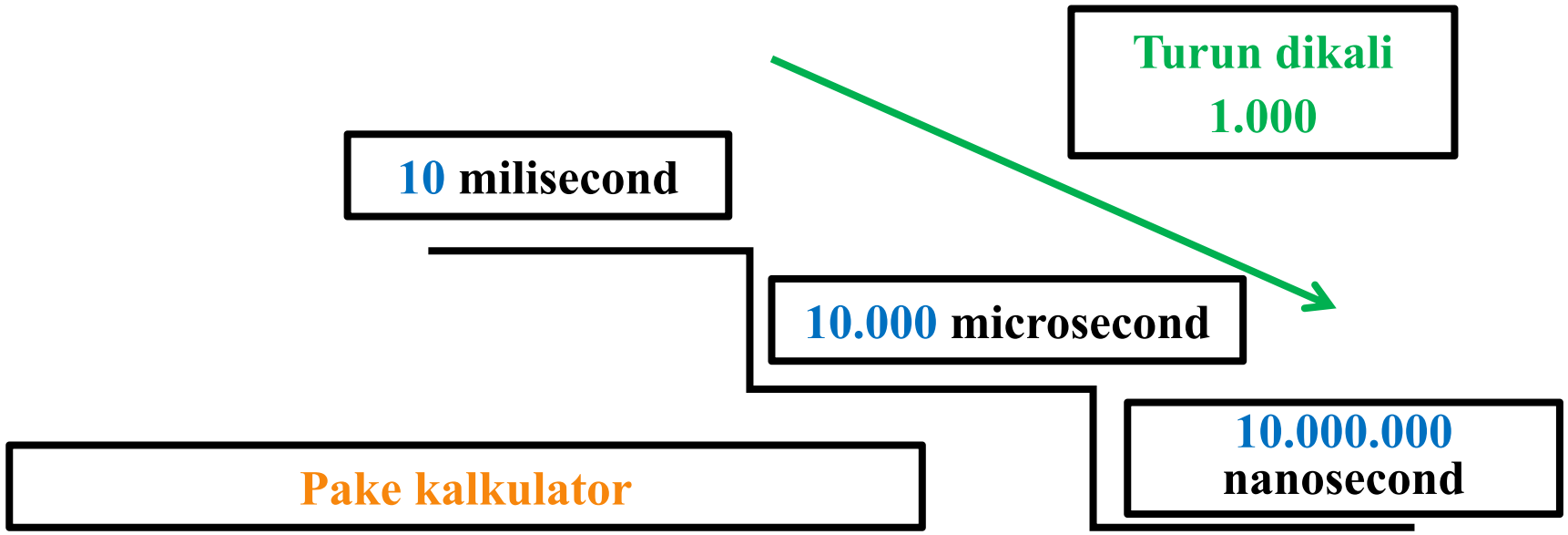
Dijawab :

- EAT = ((1-p) x ma) + (p x page fault time)
- EAT = ((1-p) x 200 ns) + (p x 10 ms)

Ketiga, Samakan satuan waktu ma dan page fault time menjadi nanosecond (ns)

ma = 200 nanosecond (ns)
page fault time = 10 milisecond (ms)

Karena ma sudah nanosecond maka tinggal mengubah page fault time



Dijawab :

- EAT = ((1-p) x ma) + (p x page fault time)
- EAT = ((1-p) x 200 ns) + (p x 10 ms)
- EAT = ((1-p) x 200 ns) + (p x 10.000.000 ns)

Ketiga, Samakan satuan waktu ma dan page fault time menjadi nanosecond (ns)

ma = 200 nanosecond (ns)
page fault time = 10 milisecond (ms)

Karena ma sudah nanosecond maka tinggal mengubah page fault time

10 ms = 10.000.000 nanosecond (ns)

Dijawab :

- EAT = ((1-p) x ma) + (p x page fault time)
- EAT = ((1-p) x 200 ns) + (p x 10 ms)
- EAT = ((1-p) x 200 ns) + (p x 10.000.000 ns)

((1-p) x 200 ns)

Keempat, dikalikan sesuai yang ada didalam kurung

Dijawab :

- EAT = ((1-p) x ma) + (p x page fault time)
- EAT = ((1-p) x 200 ns) + (p x 10 ms)
- EAT = ((1-p) x 200 ns) + (p x 10.000.000 ns)

Keempat, dikalikan sesuai yang ada didalam kurung

Satuan ns tidak perlu ditulis lagi karena satuannya tidak diganti

((1-p) x 200 ns) = 200

((1-p) x 200 ns) = -200p

(200 - 200p)

Dijawab :

- EAT = ((1-p) x ma) + (p x page fault time)
- EAT = ((1-p) x 200 ns) + (p x 10 ms)
- EAT = ((1-p) x 200 ns) + (p x 10.000.000 ns)
- EAT = (200 - 200p) +

(p x 10.000.000 ns) = 10.000.000p

Keempat, dikalikan sesuai yang ada didalam kurung

Satuan ns tidak perlu ditulis lagi karena satuannya tidak diganti

Dijawab :

- EAT = ((1-**p**) x **ma**) + (**p** x **page fault time**)
- EAT = ((1-**p**) x **200 ns**) + (**p** x **10 ms**)
- EAT = ((1-**p**) x **200 ns**) + (**p** x **10.000.000 ns**)
- EAT = (**200** - **200p**) + (**10.000.000p**)

Keempat, dikalikan sesuai yang ada didalam kurung

Dijawab :

- EAT = ((1-p) x ma) + (p x page fault time)
- EAT = ((1-p) x 200 ns) + (p x 10 ms)
- EAT = ((1-p) x 200 ns) + (p x 10.000.000 ns)
- EAT = (200 - 200p) + (10.000.000p)

Kelima, dijabarkan sesuai variabel yang sama

Contoh Variabel = p

Dijawab :

- EAT = ((1-p) x ma) + (p x page fault time)
- EAT = ((1-p) x 200 ns) + (p x 10 ms)
- EAT = ((1-p) x 200 ns) + (p x 10.000.000 ns)
- EAT = (200 - 200p) + (10.000.000p)

200 - 200p + 10.000.000p

Kelima, dijabarkan sesuai variabel yang sama

Contoh Variabel = p

Dijawab :

- EAT = ((1-p) x ma) + (p x page fault time)
- EAT = ((1-p) x 200 ns) + (p x 10 ms)
- EAT = ((1-p) x 200 ns) + (p x 10.000.000 ns)
- EAT = (200 - 200p) + (10.000.000p)

Kelima, dijabarkan sesuai variabel yang sama

Contoh Variabel = p

200 - 200p + 10.000.000p

200 + (- 200p + 10.000.000p)

Dikurungkan mulai dari -200p karena sama dengan 10.000.000p dan 200 dibiarkan sendiri sampai variabelnya sama

Dijawab :

- EAT = ((1-p) x ma) + (p x page fault time)
- EAT = ((1-p) x 200 ns) + (p x 10 ms)
- EAT = ((1-p) x 200 ns) + (p x 10.000.000 ns)
- EAT = (200 - 200p) + (10.000.000p)
- EAT = 200 + (- 200p + 10.000.000p)

10.000.000p

200p —

9.999.800p

Pake kalkulator biar g ribet

Kelima, dijabarkan sesuai variabel yang sama

Kemudian dihitung lah masa diliatin :v

Dijawab :

- EAT = ((1-**p**) x **ma**) + (**p** x **page fault time**)
- EAT = ((1-**p**) x **200 ns**) + (**p** x **10 ms**)
- EAT = ((1-**p**) x **200 ns**) + (**p** x **10.000.000 ns**)
- EAT = (**200** - **200p**) + (**10.000.000p**)
- EAT = **200** + (**- 200p** + **10.000.000p**)
- EAT = **200** + **9.999.800p** nanosecond

Keenam, g bisa dihitung karena beda variabel, maka masukin yang diketahui lagi

Dijawab :

- EAT = ((1-p) x ma) + (p x page fault time)
- EAT = ((1-p) x 200 ns) + (p x 10 ms)
- EAT = ((1-p) x 200 ns) + (p x 10.000.000 ns)
- EAT = (200 - 200p) + (10.000.000p)
- EAT = 200 + (- 200p + 10.000.000p)
- EAT = 200 + 9.999.800p nanosecond

Keenam, g bisa dihitung karena beda variabel, sekarang baru masukin variabel p

Diketahui :
- probabilitas (p) = Terdapat 10.000 ma terdapat 10 page fault

Caranya : p = 10 / 10.000

9.999.800p

nanosecondnya g usah peduliin dulu

Dijawab :

- EAT = ((1-p) x ma) + (p x page fault time)
- EAT = ((1-p) x 200 ns) + (p x 10 ms)
- EAT = ((1-p) x 200 ns) + (p x 10.000.000 ns)
- EAT = (200 - 200p) + (10.000.000p)
- EAT = 200 + (- 200p + 10.000.000p)
- EAT = 200 + 9.999.800p nanosecond

Keenam, g bisa dihitung karena beda variabel, sekarang baru masukin variabel p

Diketahui :
- probabilitas (p) = Terdapat 10.000 ma terdapat 10 page fault

Caranya : p = 10 / 10.000

9.999.800p = 9.999.800(10/10.000)

Dijawab :

- EAT = ((1-p) x ma) + (p x page fault time)
- EAT = ((1-p) x 200 ns) + (p x 10 ms)
- EAT = ((1-p) x 200 ns) + (p x 10.000.000 ns)
- EAT = (200 - 200p) + (10.000.000p)
- EAT = 200 + (- 200p + 10.000.000p)
- EAT = 200 + 9.999.800p nanosecond
- EAT = 200 + 9.999.800(10/10.000) nanosecond

$$\frac{9.999.800 \times 10}{10.000} = \frac{99.998.000}{10.000}$$

Ketujuh, hitung lagi tapi yang ada kurungan dikerjain dulu baru ditambah

Dijawab :

- EAT = ((1-p) x ma) + (p x page fault time)
- EAT = ((1-p) x 200 ns) + (p x 10 ms)
- EAT = ((1-p) x 200 ns) + (p x 10.000.000 ns)
- EAT = (200 - 200p) + (10.000.000p)
- EAT = 200 + (- 200p + 10.000.000p)
- EAT = 200 + 9.999.800p nanosecond
- EAT = 200 + 9.999.800(10/10.000) nanosecond
- EAT = 200 + (99.998.000/10.000) nanosecond

Kedelapan, hitung lagi tapi yang di kurungan dikerjain dulu baru ditambah

Pake kalkulator aja gan

$$\frac{99.998.000}{10.000} = 9.999,8$$

Dijawab :

Kesembilan, tinggal ditambahin

- EAT = ((1-p) x ma) + (p x page fault time)
- EAT = ((1-p) x 200 ns) + (p x 10 ms)
- EAT = ((1-p) x 200 ns) + (p x 10.000.000 ns)
- EAT = (200 - 200p) + (10.000.000p)
- EAT = 200 + (- 200p + 10.000.000p)
- EAT = 200 + 9.999.800p nanosecond
- EAT = 200 + 9.999.800(10/10.000) nanosecond
- EAT = 200 + (99.998.000/10.000) nanosecond
- EAT = 200 + 9.999,8 nanosecond

Pake kalkulator #2

Dijawab :

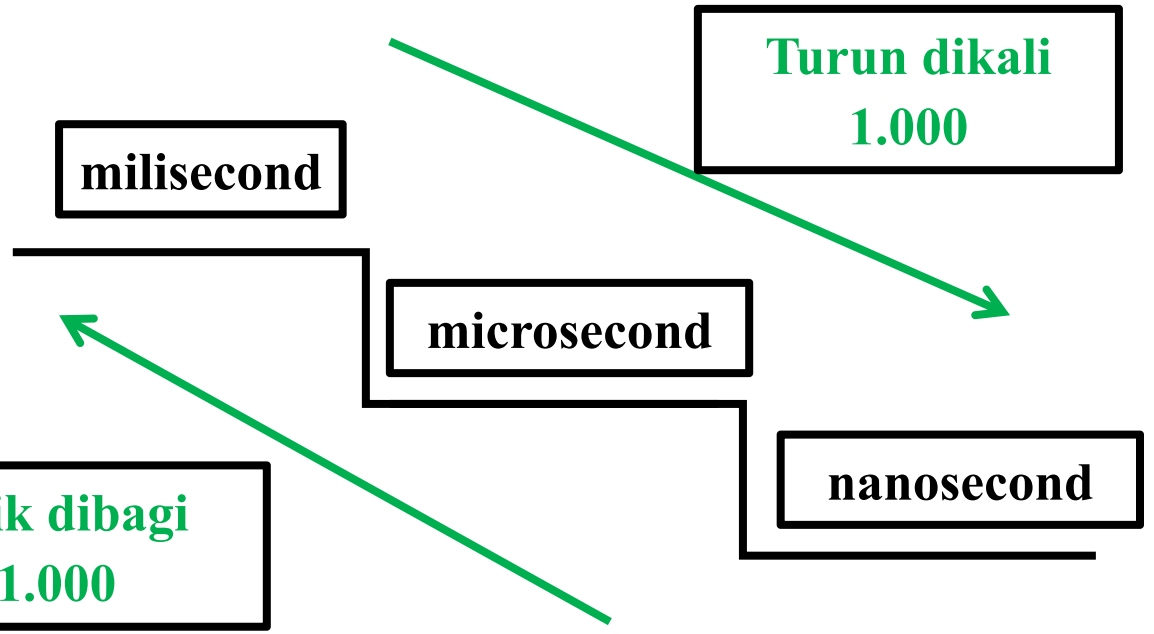
- EAT = ((1-**p**) x **ma**) + (**p** x **page fault time**)
- EAT = ((1-**p**) x **200 ns**) + (**p** x **10 ms**)
- EAT = ((1-**p**) x **200 ns**) + (**p** x **10.000.000 ns**)
- EAT = (**200** - **200p**) + (**10.000.000p**)
- EAT = **200** + (**- 200p** + **10.000.000p**)
- EAT = **200** + **9.999.800p** nanosecond
- EAT = **200** + **9.999.800**(**10**/**10.000**) nanosecond
- EAT = **200** + (**99.998.000**/**10.000**) nanosecond
- EAT = **200** + **9.999,8** nanosecond
- EAT = **10.199,8** nanosecond

Kesepuluh, ubah dari satuan nanosecond jadi bentuk microsecond

Dijawab :

- EAT = ((1-p) x ma) + (p x page fault time)
- EAT = ((1-p) x 200 ns) + (p x 10 ms)
- EAT = ((1-p) x 200 ns) + (p x 10.000.000 ns)
- EAT = (200 - 200p) + (10.000.000p)
- EAT = 200 + (- 200p + 10.000.000p)
- EAT = 200 + 9.999.800p nanosecond
- EAT = 200 + 9.999.800(10/10.000) nanosecond
- EAT = 200 + (99.998.000/10.000) nanosecond
- EAT = 200 + 9.999,8 nanosecond
- EAT = **10.199,8** nanosecond

Kesepuluh, ubah dari satuan nanosecond jadi bentuk microsecond

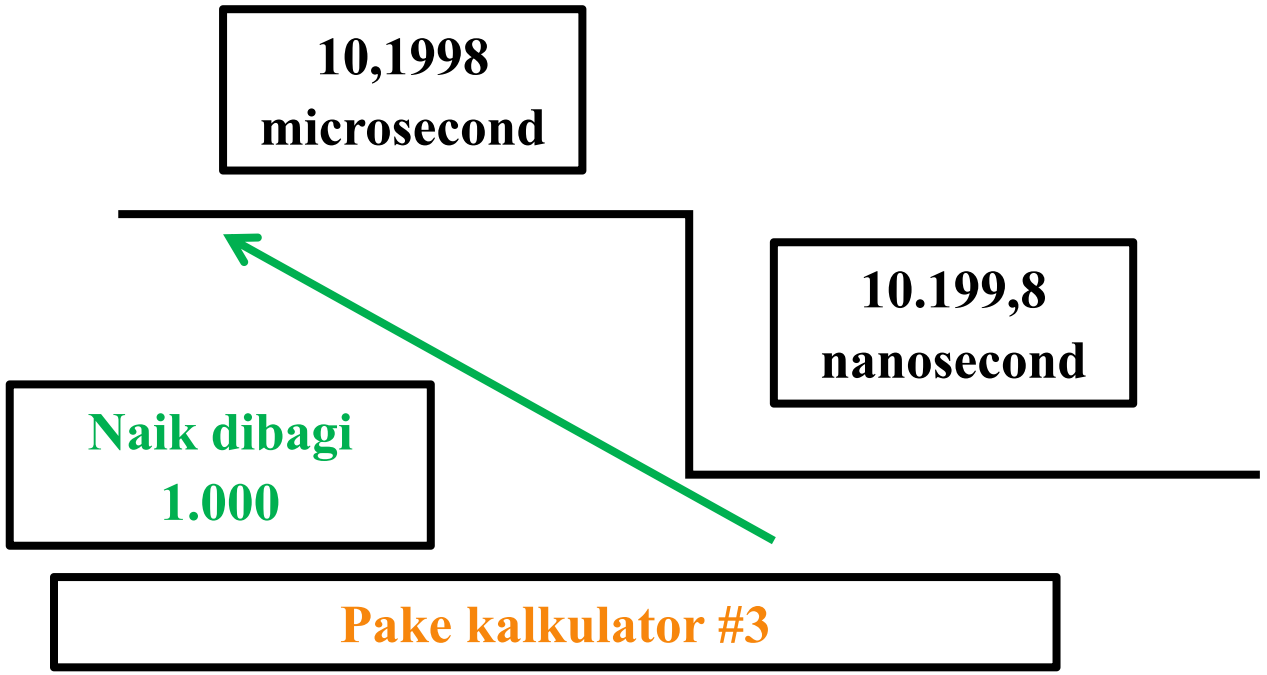


Sekarang baru peduliin satuan waktunya

Dijawab :

- EAT = ((1-p) x ma) + (p x page fault time)
- EAT = ((1-p) x 200 ns) + (p x 10 ms)
- EAT = ((1-p) x 200 ns) + (p x 10.000.000 ns)
- EAT = (200 - 200p) + (10.000.000p)
- EAT = 200 + (- 200p + 10.000.000p)
- EAT = 200 + 9.999.800p nanosecond
- EAT = 200 + 9.999.800(10/10.000) nanosecond
- EAT = 200 + (99.998.000/10.000) nanosecond
- EAT = 200 + 9.999,8 nanosecond
- EAT = **10.199,8** nanosecond

Kesepuluh, ubah dari satuan nanosecond jadi bentuk microsecond



Dijawab :

- EAT = ((1-**p**) x **ma**) + (**p** x **page fault time**)
- EAT = ((1-**p**) x **200 ns**) + (**p** x **10 ms**)
- EAT = ((1-**p**) x **200 ns**) + (**p** x **10.000.000 ns**)
- EAT = (**200** - **200p**) + (**10.000.000p**)
- EAT = **200** + (**- 200p** + **10.000.000p**)
- EAT = **200** + **9.999.800p** nanosecond
- EAT = **200** + **9.999.800**(**10**/**10.000**) nanosecond
- EAT = **200** + (**99.998.000**/**10.000**) nanosecond
- EAT = **200** + **9.999,8** nanosecond
- EAT = **10.199,8** nanosecond
- EAT = **10,1998** microsecond

Kesepuluh, ubah dari satuan nanosecond jadi bentuk microsecond

Satuannya jadi microsecond, singkatan microsecond kalo g salah bukan ms

Dijawab :

- EAT = ((1-**p**) x **ma**) + (**p** x **page fault time**)
- EAT = ((1-**p**) x **200 ns**) + (**p** x **10 ms**)
- EAT = ((1-**p**) x **200 ns**) + (**p** x **10.000.000 ns**)
- EAT = (**200** - **200p**) + (**10.000.000p**)
- EAT = **200** + (**- 200p** + **10.000.000p**)
- EAT = **200** + **9.999.800p** nanosecond
- EAT = **200** + **9.999.800**(**10**/**10.000**) nanosecond
- EAT = **200** + (**99.998.000**/**10.000**) nanosecond
- EAT = **200** + **9.999,8** nanosecond
- EAT = **10.199,8** nanosecond
- EAT = **10,1998** microsecond

Kesebelas, bulatkan jadi 1 angka dibelakang koma

Rumus membulatkan angka :

0 - 4 : Angkanya tetap

5 - 9 : Naik 1 angka

Dijawab :

- EAT = ((1-p) x ma) + (p x page fault time)
- EAT = ((1-p) x 200 ns) + (p x 10 ms)
- EAT = ((1-p) x 200 ns) + (p x 10.000.000 ns)
- EAT = (200 - 200p) + (10.000.000p)
- EAT = 200 + (- 200p + 10.000.000p)
- EAT = 200 + 9.999.800p nanosecond
- EAT = 200 + 9.999.800(10/10.000) nanosecond
- EAT = 200 + (99.998.000/10.000) nanosecond
- EAT = 200 + 9.999,8 nanosecond
- EAT = **10.199,8** nanosecond
- EAT = **10,1998** microsecond

Kesebelas, bulatkan jadi 1 angka dibelakang koma yaitu angka 1 dibulatkan dari ,1998

Rumus membulatkan angka :

0 - 4 : Angkanya tetap

5 - 9 : Naik 1 angka

Karena dibelakang koma ada 4 angka, maka yang diliat dari ,1998 cukup angka sebelumnya yaitu 9

Dijawab :

- EAT = ((1-p) x ma) + (p x page fault time)
- EAT = ((1-p) x 200 ns) + (p x 10 ms)
- EAT = ((1-p) x 200 ns) + (p x 10.000.000 ns)
- EAT = (200 - 200p) + (10.000.000p)
- EAT = 200 + (- 200p + 10.000.000p)
- EAT = 200 + 9.999.800p nanosecond
- EAT = 200 + 9.999.800(10/10.000) nanosecond
- EAT = 200 + (99.998.000/10.000) nanosecond
- EAT = 200 + 9.999,8 nanosecond
- EAT = **10.199,8** nanosecond
- EAT = **10,1998** microsecond

Kesebelas, bulatkan jadi 1 angka dibelakang koma yaitu angka 1 dibulatkan dari ,1998

Rumus membulatkan angka :

0 - 4 : Angkanya tetap

5 - 9 : Naik 1 angka

Sesuai rumus angka 9 berarti naik 1 angka jadi angka 1 naik jadi angka.....

Dijawab :

- EAT = ((1-p) x ma) + (p x page fault time)
- EAT = ((1-p) x 200 ns) + (p x 10 ms)
- EAT = ((1-p) x 200 ns) + (p x 10.000.000 ns)
- EAT = (200 - 200p) + (10.000.000p)
- EAT = 200 + (- 200p + 10.000.000p)
- EAT = 200 + 9.999.800p nanosecond
- EAT = 200 + 9.999.800(10/10.000) nanosecond
- EAT = 200 + (99.998.000/10.000) nanosecond
- EAT = 200 + 9.999,8 nanosecond
- EAT = **10.199,8** nanosecond
- EAT = **10,1998** microsecond

Kesebelas, bulatkan jadi 1 angka dibelakang koma yaitu angka 1 dibulatkan dari ,1998

Rumus membulatkan angka :

0 - 4 : Angkanya tetap

5 - 9 : Naik 1 angka

Sesuai rumus angka 9 berarti naik 1 angka jadi angka 1 naik jadi angka.....

Dijawab :

- EAT = ((1-p) x ma) + (p x page fault time)
- EAT = ((1-p) x 200 ns) + (p x 10 ms)
- EAT = ((1-p) x 200 ns) + (p x 10.000.000 ns)
- EAT = (200 - 200p) + (10.000.000p)
- EAT = 200 + (- 200p + 10.000.000p)
- EAT = 200 + 9.999.800p nanosecond
- EAT = 200 + 9.999.800(10/10.000) nanosecond
- EAT = 200 + (99.998.000/10.000) nanosecond
- EAT = 200 + 9.999,8 nanosecond
- EAT = **10.199,8** nanosecond
- EAT = **10,1998** microsecond

Kesebelas, bulatkan jadi 1 angka dibelakang koma yaitu angka 1 dibulatkan dari ,1998

Rumus membulatkan angka :

0 - 4 : Angkanya tetap

5 - 9 : Naik 1 angka

Sesuai rumus angka 9 berarti naik 1 angka jadi angka 1 naik jadi angka.....

Ceritanya ada gambar syaitan tapi karena syaitan ghaib jadinya g keliatan :v

Dijawab :

- EAT = ((1-p) x ma) + (p x page fault time)
- EAT = ((1-p) x 200 ns) + (p x 10 ms)
- EAT = ((1-p) x 200 ns) + (p x 10.000.000 ns)
- EAT = (200 - 200p) + (10.000.000p)
- EAT = 200 + (- 200p + 10.000.000p)
- EAT = 200 + 9.999.800p nanosecond
- EAT = 200 + 9.999.800(10/10.000) nanosecond
- EAT = 200 + (99.998.000/10.000) nanosecond
- EAT = 200 + 9.999,8 nanosecond
- EAT = **10.199,8** nanosecond
- EAT = **10,1998** microsecond

Kesebelas, bulatkan jadi 1 angka dibelakang koma yaitu angka 1 dibulatkan dari ,1998

Rumus membulatkan angka :

0 - 4 : Angkanya tetap

5 - 9 : Naik 1 angka

Sesuai rumus angka 9 berarti naik 1 angka jadi angka 1 naik jadi angka, Y angka 2

Dijawab :

Keduabelas, selesai

- EAT = ((1-**p**) x **ma**) + (**p** x **page fault time**)
- EAT = ((1-**p**) x **200 ns**) + (**p** x **10 ms**)
- EAT = ((1-**p**) x **200 ns**) + (**p** x **10.000.000 ns**)
- EAT = (**200** - **200p**) + (**10.000.000p**)
- EAT = **200** + (**- 200p** + **10.000.000p**)
- EAT = **200** + **9.999.800p** nanosecond
- EAT = **200** + **9.999.800**(**10**/**10.000**) nanosecond
- EAT = **200** + (**99.998.000**/**10.000**) nanosecond
- EAT = **200** + **9.999,8** nanosecond
- EAT = **10.199,8** nanosecond
- EAT = **10,1998** microsecond
- EAT = **10,2** microsecond

Soal No 7

Diketahui :
- memory access (ma) = **200 ns**
- page fault time = **10 ms**
- probabilitas (p) = Terdapat **10.000 ma** terdapat **10 page fault**

Ditanya :
- Effective access time atau EAT

Rumus :
- EAT = ((1-p) x **ma**) + (p x **page fault time**)

Dijawab :

- EAT = ((1-**p**) x **ma**) + (**p** x **page fault time**)
- EAT = ((1-**p**) x **200 ns**) + (**p** x **10 ms**)
- EAT = ((1-**p**) x **200 ns**) + (**p** x **10.000.000 ns**)
- EAT = (**200** - **200p**) + (**10.000.000p**)
- EAT = **200** + (**- 200p** + **10.000.000p**)
- EAT = **200** + **9.999.800p** nanosecond
- EAT = **200** + **9.999.800**(**10**/**10.000**) nanosecond
- EAT = **200** + (**99.998.000**/**10.000**) nanosecond
- EAT = **200** + **9.999,8** nanosecond
- EAT = **10.199,8** nanosecond
- EAT = **10,1998** microsecond
- EAT = **10,2** microsecond