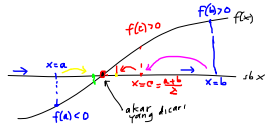
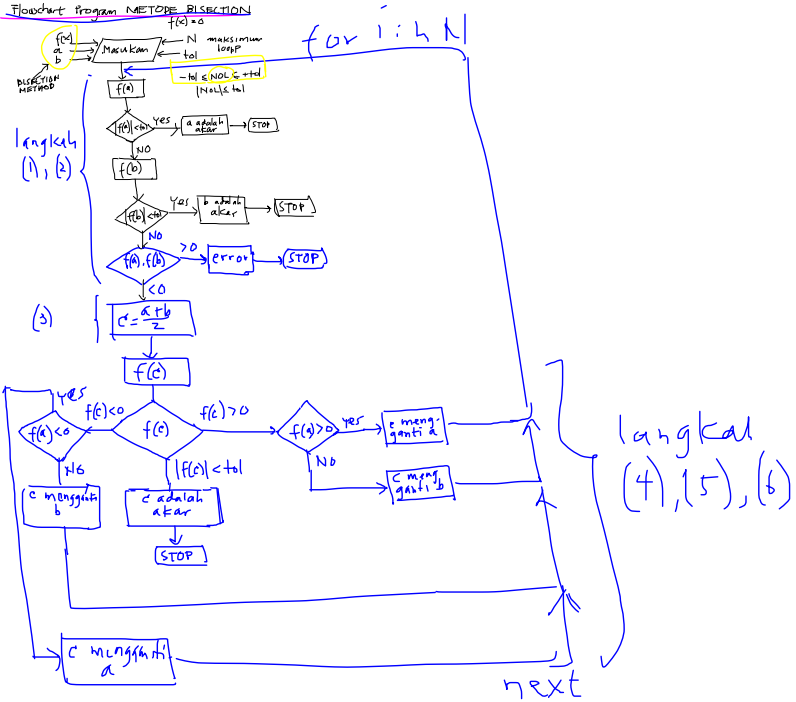
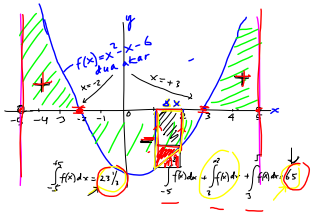
Gagasan Metode Bisection



Flowchart program METODE BISECTION





UJIAN FINAL 1 Juni 2015

OPEN BOOK
LAPTOP OK

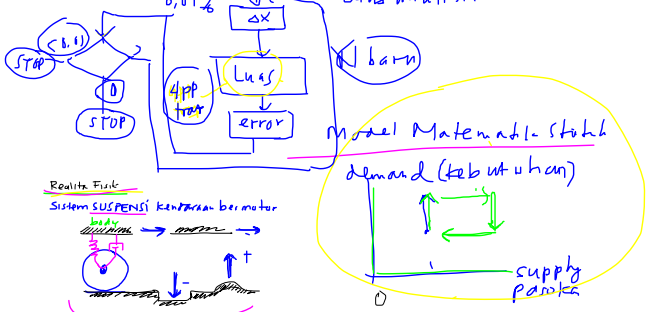
[Materi sd KASUS 2
Tugas 1 dan Tugas 2] → max 20%

TUGAS 2

1. Menghitung secara analitik
   - * $x^2 - x - 6$
   - * $x^3 - x - 6$
   - * $x^{1.5} - x - 6$
   - * $x^r + \ldots$

   $a < x < b$
   a dan b adalah nilai awal untuk mencari akar

2. a, b, toleransi 0,01 %, fungsi, N (interval max), Luas analitik



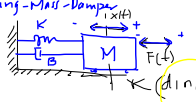
Model Matematika Statik

Realita Fisik

Sistem SUSPENSI kendaraan bermotor

Model Fisik

Spring-Mass-Damper



(dinamik) gaya

Model MATEMATIK

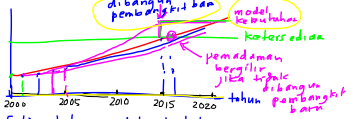
Pers. Differensial

$$F(t) = M\frac{d^2x(t)}{dt^2} + B\frac{dx(t)}{dt} + Kx(t)$$

t = time

Contoh

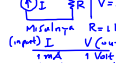
Membuat model konsumsi energi listrik



Setiap tahun model kebutuhan bisa diperbaiki berdasarkan pengamatan pada tahun trb

[VALIDASI]

Deterministik dan Stokhastik



V = I R

Misalnya R = 1 kΩ

(input) I	V (output)
1 mA	1 Volt
2 mA	2 Volt
.	.
.	.

toleransi

R = 1kΩ ± 10%

0,9kΩ ≤ R ≤ 1,1 kΩ

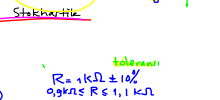
I	V (V=IR)
1mA	0,9 - 1,1
2 mA	1,8 - 2,2
3 mA	2,7 - 3,3
.	.
.	.

Deterministik ⟷ Stokhastik

KHAOTIK (chaotic)

* Sistem Kontinyu (Malar)

⇒ time-continuous

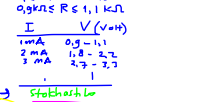


* Sistem Diskrit

(buatan manusia)

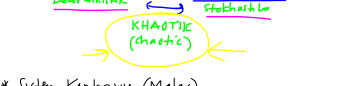
⇒ Discrete-time (sistem digital)

⇒ Discrete-event

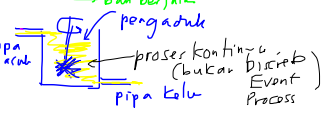


(pabrik → proses)

batch material



→ ban berjalan



"ANALOG"

"DIGITAL"

A/D Converter

D/A Converter