NM

Date
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2) Bisection method:

$$xe^x = 1$$

$$\Rightarrow f(x) = xe^x - 1 = 0 \qquad [0, 1]$$

Final ans: ~~0.00~~ $\boxed{x = 0.567}$

$f(0) = (-1)$, $f(1) = 1.718$

$\Rightarrow f(0.5) = -0.1756$

$[0.5, 1]$

3) $\boxed{f(1.5) = 2}$ [final answer]

4) $\boxed{\begin{aligned} x &= 3.36 \\ y &= 1.86 \\ z &= 0.86 \end{aligned}}$

5) → At $t = 2.37$ min,
velocity = 1.2345 km/min
acceleration = 0.1234 km/min²
→ At $t = 4.57$ min, velocity = 1.6789 km/min
acceleration = 0.0567 km/min²

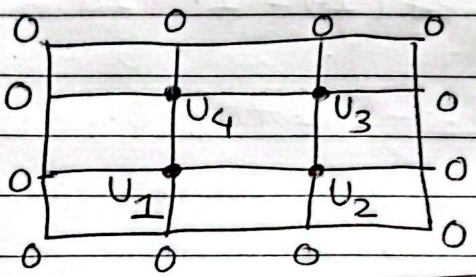
6) Refer to another ~~se~~ file I sent

7) Largest eigen value = 3

Corresponding eigen vector = $\begin{bmatrix} 1 \\ 1 \\ 0 \end{bmatrix}$

8) $U_1 = (-3.2482)$ $U_3 = (-10.7491)$

$U_2 = (-5.4987)$ $U_4 = (-5.4993)$



9) ~~x=1, y=2, z=1~~

$\boxed{a=1,\ b=2,\ c=1}$

10) Refer to file (same file as 6)

11) $\boxed{x = 2 \text{ or } 1}$