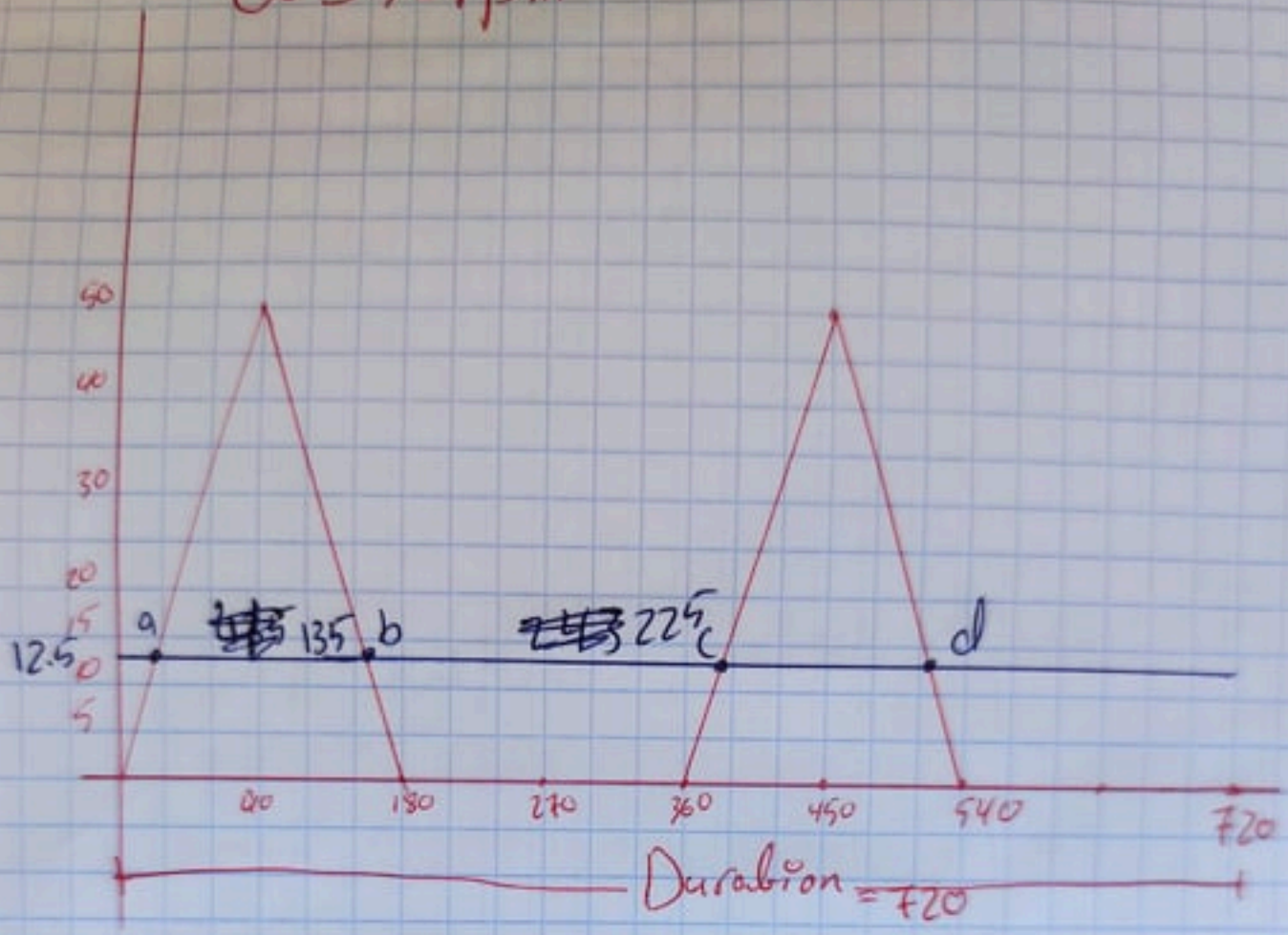
Yosef

$\omega = 50 rpm$




$$T_{avg} = \frac{\text{Total Energy}}{\text{Durabion}}$$

Total Energy = area under the two curves

$= 2 \times \frac{1}{2} \pi \times 50$

$= 50\pi^2 N$

$$T_{avg} = \frac{50\pi}{4\pi} = 12.5\ N$$

4) The Power $= T_{avg} \cdot \omega$

$$= 12.5 \times 50 \times \frac{2\pi}{60}$$

$$= 65.45\ J$$

5) cranck angle $= \frac{4\pi}{\#Piston}$

assume energy at a = $E_a$ $\Rightarrow$ $E_{min}$

energy at b = $E_a$ + area

$= E_a + \frac{1}{2}\left(135 \times \frac{\pi}{180}\right) 37.5$

$= E_a + 44.18$

180 → 50

x → 37.5

$x = \frac{180 \times 37.5}{50} = 135$

180 → 50

y → 67.5

$y = \frac{180 \times 67.5}{50} = 243°$

energy at c = $E_b - \frac{1}{2}\left(\frac{225}{180} \times \pi\right) \cdot 12.5$

$= E_b - 24.54$

energy at d = $E_c + 44.18$ $\Rightarrow$ $E_{max}$

$e = E_{max} - E_{min}$

$e = E_c + 44.18 - E_a$

$(E_a + 44.18 - 24.54) + 44.18 - E_a$

$e = 63.82\ J$

$K = \frac{e}{I\omega^2}$.

$\frac{1}{2}mv^2 = \frac{e}{mk_0^2\omega^2}$

$\sqrt{m^2} = \sqrt{\frac{2e}{k_0^2\omega^2}} = \sqrt{2.7\ kg^2}$

3) $m = 1.643\ kg$

2) ~~$K = \frac{1}{2}mv^2 = \frac{1}{2} \times 1.643$~~.

~~$K = \frac{1}{2}$~~ $K = \frac{1}{2}mv^2$