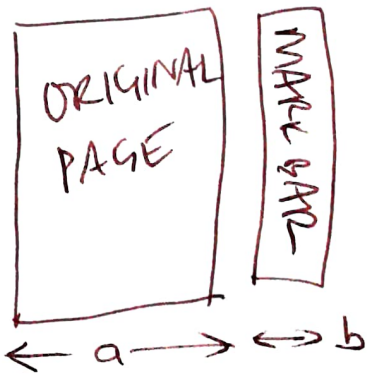
7123456

A1 (a) This is an answer to a question on how to add marking boxes to a pdf. They should appear somewhere over there →

(b) But actually, if we drew a diagram, we might see this.



I forget something ... !!!

Something extra entered by hand using a very old mouse tablet

put it in here using the editor

(c) The maths for the width is trivial

$$w = a + b.$$

OR:

$$\int_0^{a+b} dl = a+b$$

which is what we expect.

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A2

(a) We start with an exponential

$$e^{-\alpha x} = A(x)$$

then make up some conditions to complete the specification, such as

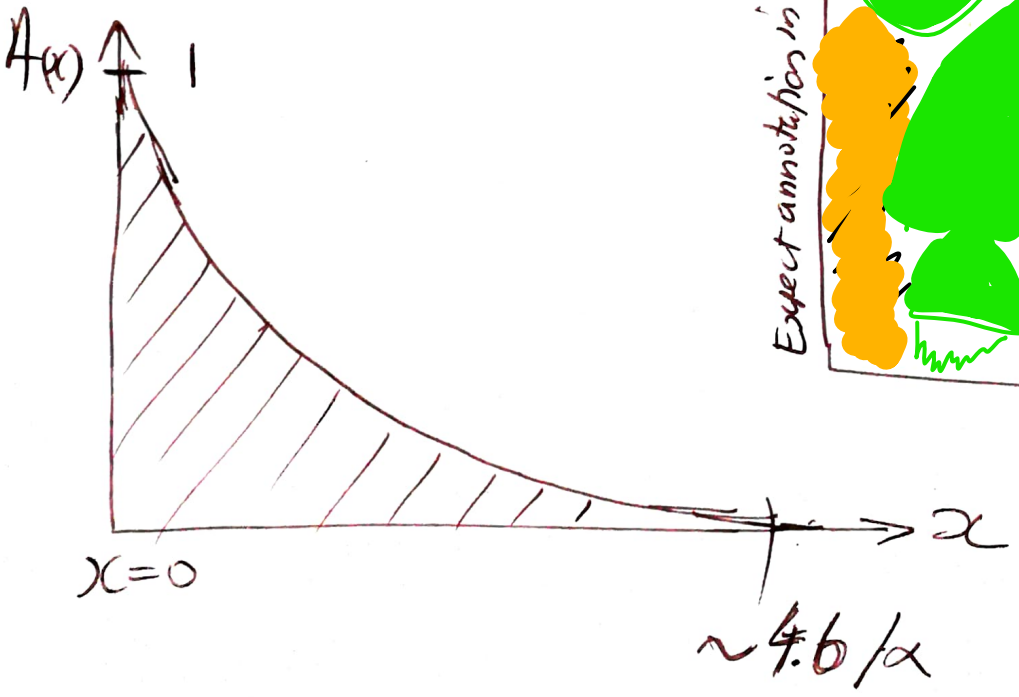
$\alpha \leq \alpha_{max}$, and

$\alpha \geq \alpha_{min}$.

(b) Again, not rocket science that

$\alpha_{min} \leq \alpha \leq \alpha_{max}$

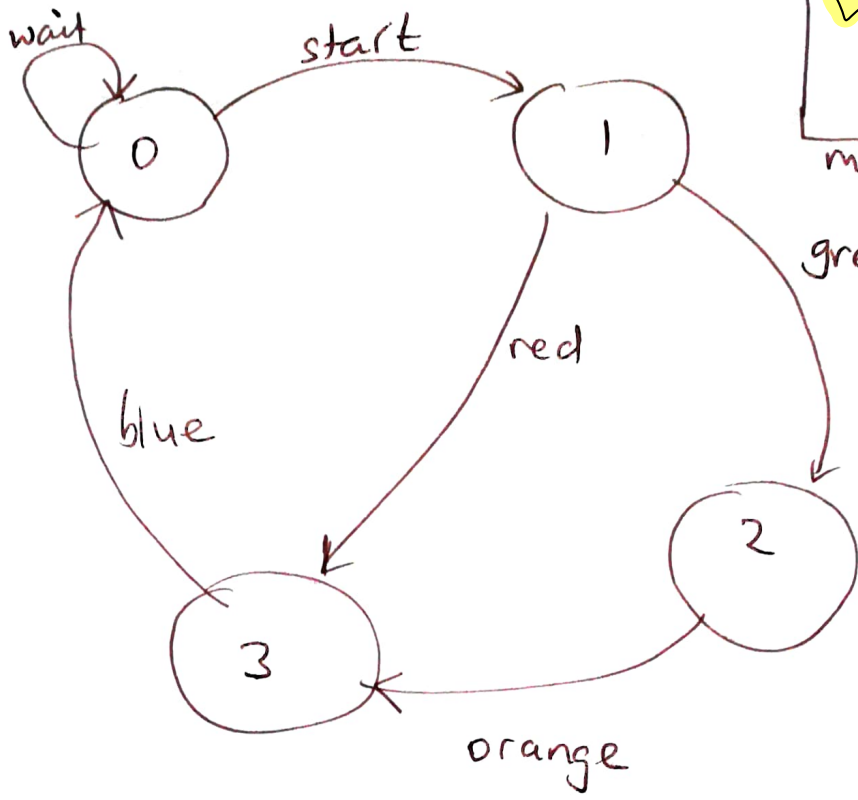
(c)



7 1 2 3 4 5 6

B1

(a)



$V = \frac{w}{2}$

more annotation in here

"The coloured states are numbered starting at zero" makes no sense because the edges have colour names, and these represent transitions.

I'll edit/annotate in this box electronically

(b) $\overline{A+B} = \overline{A}.\overline{B}$

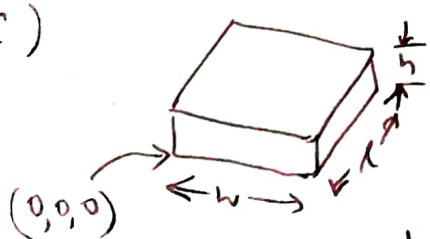
$A = A(B+\overline{B})$

$\oint V\,dv = 0$

kind of makes it a bit simple.

because I forgot something. oops.

(c)



$$\oint_r \psi_r\,dv = \int_0^h \int_0^d \int_0^w \psi(x,y,z)\,dx\,dy\,dz$$

$$\psi(x,y,z) = x + 2y - z^2$$

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(a) While PDf differs from postscript in terms of treating each page as starting afresh, we should still stick another portrait page on the end of the scan to test whether the page orientation detector is "up to snuff!" — archaic expression

(b) "A photon can circle the world in the same time it takes to drop your coffee" —
— this statement is nearly true
(a) photons travel in straight lines
(b) no-ones had enough funding to make a whole-world sized transformation optic yet
(c) some people drop coffee from a greater height than others.
(d) if we assume linear photon travel of circumference of earth, and

$$2\text{coffee} - 2\text{desk} = 65\,\text{cm}$$

Then we're getting close

$d = vt$ $v = at$
$\int$

$d = \frac{1}{2}at^2$

$\sqrt{\frac{2d}{a}} = t$

$2\pi D_{world} = 40{,}075\,\text{km} = 40\,\text{Mm}$

$$d = \frac{\left(\frac{2\pi D_W}{c}\right)^2 g}{2} = 65\,\text{cm}.$$

Mmm..... You must be standing up for this to be true!

CHECK THIS IS BLANK