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:

ORIGINAL PAGE | MARK BAND

← a → ↔ b

I forgot something... I'll put it in here using the pdf editor

Something extra entered by hand using a very old mischievous tablet

(c) The maths for the width is trivial

$$w = a + b.$$

OR:

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

which is what we expect.

7 1 2 3 4 5 6

A2 (a) We start with an exponential

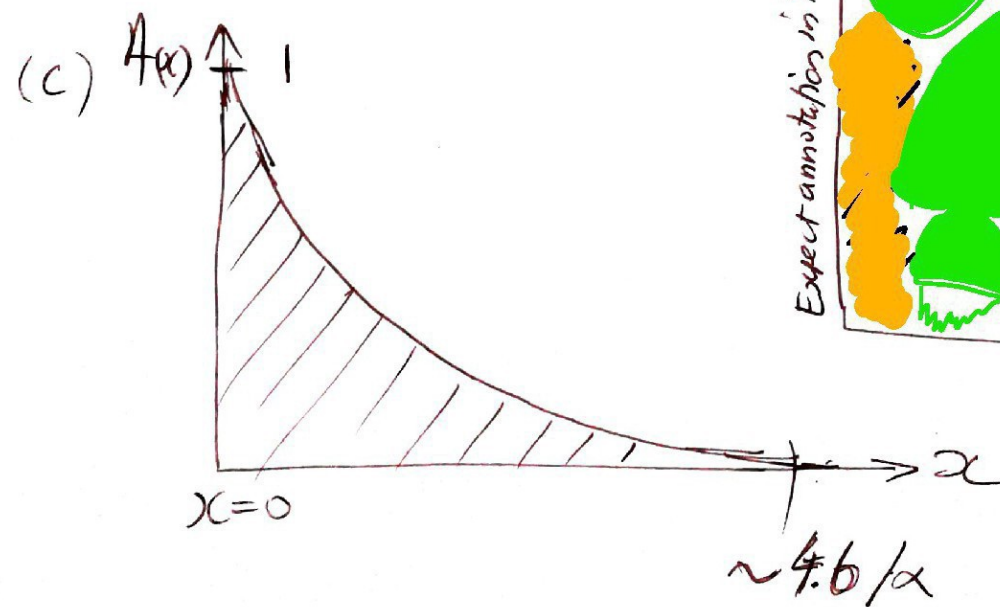$$e^{-\alpha x} = A(x)$$

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

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

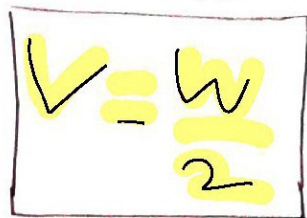$$\alpha \geq \alpha_{min}.$$

(b) Again, not rocket science that

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

(c)

Expect annotations in this box

7 1 2 3 4 5 6

A2 (a) We start with an exponential

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

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

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

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

(b) Again, not rocket science that

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

(c) $A(x)$

$x = 0$

$\sim 4.6/\alpha$

Expect annotations in this box

B1

(a)

wait, start, green, red, blue, orange, states 0, 1, 2, 3

$V = \dfrac{W}{2}$

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.

(b)

$\overline{A+B} = \overline{A}\cdot\overline{B}$

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

I'll edit/annotate in this box electronically

$$\oint V\,dv = 0$$

kind of makes it a bit simple.

because I forgot something. oops.

(c)

$(0,0,0)$, $\leftarrow w \rightarrow$

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

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

B3   7123456

(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 if 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-one 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

65 cm

$z_{coffee} - z_{desk} =$

Then we're getting close

CHECK THIS IS BLANK

$d = rt$ $v = at$

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

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

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

$\frac{2\pi D_{world}}{c}$

$d = \left(\frac{2\pi D_w}{c}\right)^2 \frac{g}{2m}$

$\approx 65 \text{ cm}.$

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