

B3

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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-one had enough funding to make a whole-world sized transformation optics yet

(c) some people drop coffee from a greater height than others.

(d) if we assume linear photon travel of circumference of earth and

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

Then we're getting close

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

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

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

$$d = \left(\frac{2\pi R_{\text{earth}}}{c}\right)^2 \frac{g}{2}$$

$$= 65\text{cm}$$

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

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