

# Quiz 8

$$\int_4^{\infty} e^{-x/2} dx = \lim_{b \rightarrow \infty} \int_4^b e^{-x/2} dx = \lim_{b \rightarrow \infty} \left[ -2e^{-x/2} \right]_4^b$$

Let  $u = -x/2$

so  $-2du = dx$

$$= \lim_{b \rightarrow \infty} \left[ -2e^{-b/2} - -2e^{-4/2} \right]$$

$$= \lim_{b \rightarrow \infty} \left[ \frac{-2}{e^{b/2}} + \frac{2}{e^2} \right]$$

$$= 0 + \frac{2}{e^2}$$

$$= \boxed{\frac{2}{e^2}}$$

$$\frac{x-10}{x-11} \cdot \frac{x+11}{x+11} = \frac{(x-10)(x+11)}{x^2-121} = \frac{x^2-11x-110}{x^2-121}$$

$$\frac{x-11}{x-11} \cdot \frac{x+11}{x-11} = \frac{(x+11)}{x-11}$$

$$\frac{(x+11)(x-11)}{x^2-121}$$