

Minification Gain

$$\left(\frac{I}{O}\right)^2 \rightarrow \left(\frac{15}{2}\right)^2 \rightarrow \frac{225}{4} \rightarrow \underline{\underline{56.25}}$$

Input Phosphor size – 15"

Output Phosphor size – 2"

TBG with a Flux Gain of 75 (use  $\bar{c}$  above)  $\rightarrow$  MG  $\times$  Flux Gain = TBG

$$56.25 \times 75 = \underline{\underline{4219}} \text{ (rounded)}$$

Dose Change with Magnification

$$\left(\frac{\text{Normal}}{\text{Mag}}\right)^2$$

Normal mode – 17"

Magnification mode – 9"

$$\left(\frac{17}{9}\right)^2 \rightarrow \frac{289}{81} = 3.6 \uparrow \text{ or } \downarrow$$

(depends on question)

Inverse Square Law (solve for x)

$$\frac{I_1}{I_2} = \left(\frac{D_2}{D_1}\right)^2$$

Intensity 1 = 7 mR/min

Intensity 2 = X

Distance 1 = 18"

Distance 2 = 12"

$$\frac{7}{x} = \left(\frac{12}{18}\right)^2 \rightarrow \frac{7}{x} = \frac{144}{324} \rightarrow 144x = (324)(7)$$

$$144x = 2268 \rightarrow x = \frac{2268}{144} \rightarrow x = 15.75$$

This example shows how the intensity changes from 7 mR/min to 15.75 mR/min just by going from an 18" SSD (source to skin distance) to a 12" SSD