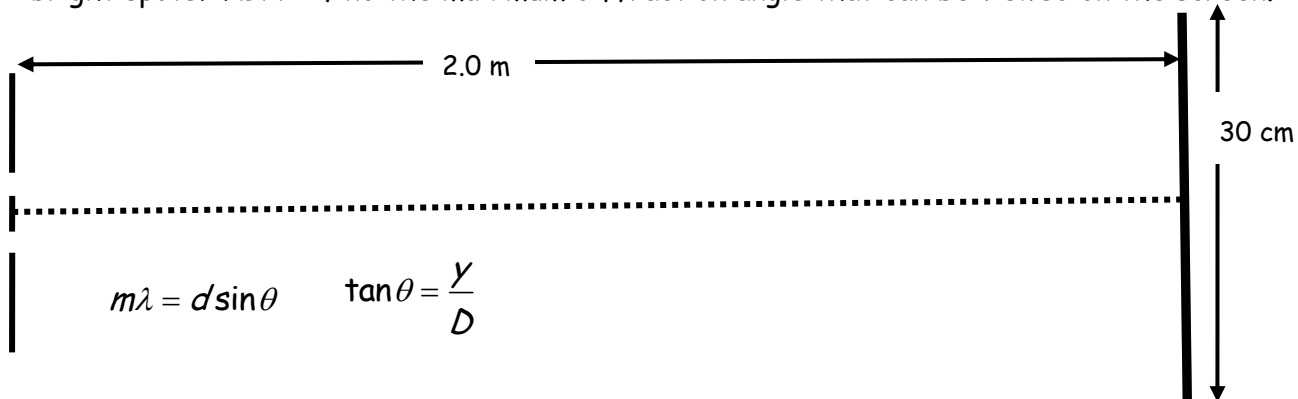# Quiz 8

1) In a Young's double slit diffraction experiment, Yellow light of a wavelength 560nm is incident on a double slit with a slit separation of 25μm. A screen of width 30 cm is placed a distance of 2.0 m from the slit. How many diffraction orders do you see? How many bright spots? HINT: find the maximum diffraction angle that can be viewed on the screen.

2.0 m

30 cm

$$m\lambda = d\sin\theta \qquad \tan\theta = \frac{y}{D}$$

2. ^{237}Np (Z=93) alpha decays. Which of the following is the daughter product?

a) $^{237}_{89}Ac$

b) $^{235}_{91}Pa$

c) $^{237}_{92}U$

d) $^{233}_{91}Pa$

e) $^{233}_{89}Ac$

3. ^{225}Ra (Z=88) decays via beta minus. Which of the following is the daughter product?

a) $^{226}_{89}Ac$

b) $^{225}_{87}Fr$

c) $^{225}_{89}Ac$

d) $^{221}_{86}Rn$

e) $^{224}_{87}Fr$