

3.  $\xleftarrow{5.22\text{cm}}$  13 dots  $\xrightarrow{\hspace{1cm}}$   
 000000000000000  
 12 spacings between dots  $\rightarrow \frac{5.22}{12} \rightarrow .435\text{cm}$  <sup>(3)</sup>  
 $-\frac{1}{2}$  if divide by 13 spacing between fringes bright spots

(b)  $y = \frac{m\lambda L}{d}$   $d = \frac{m\lambda L}{y} = \frac{(1)(633 \times 10^{-9})(3.2)}{.435 \times 10^{-2}}$   
 $= .000466\text{ m}$   
~~.466~~ .466 mm

⊙ ← darker ←  
 ○  
 ○  
 ○  
 ○ middle  
 because of single slit destructive interference

$y = \frac{n\lambda L}{a}$

$a = \frac{n\lambda L}{y} = \frac{(1)(633 \times 10^{-9})(3.2)}{4(.435 \times 10^{-2})} = .000116\text{ m}$   
 $= .116\text{ mm}$