① $\Delta y = \frac{\lambda D}{d} = \frac{(512\times10^{-9}\,m)(5.40\,m)}{(1.2\times10^{-3}\,m)} = 2.3\times10^{-3}\,m$

$= 2.3\,mm$

② $\Delta y = \frac{18\,mm}{9} = 2.0\,mm$

$\lambda = \frac{\Delta y\, d}{D} = \frac{(2.0\times10^{-3}\,m)(0.15\times10^{-3}\,m)}{0.50\,m}$

$= 6.0\times10^{-7}\,m = 600\,nm$

③ $y_m = m\frac{\lambda D}{d}$

For 480nm $y_3 = \frac{(3)(480\times10^{-9}\,m)(1.36\,m)}{5.22\times10^{-3}\,m} = 3.75\times10^{-4}\,m$

$= 0.375\,mm$

612nm $y_3 = \frac{(3)(612\times10^{-9}\,m)(1.36\,m)}{5.22\times10^{-3}\,m} = 4.78\times10^{-4}\,m$

$= 0.478\,mm$

$y_3(612nm) - y_3(480nm) = 0.103\,mm$