85. (a) Letting $d \sin\theta = m\lambda$, we solve for λ:

$$\lambda = \frac{d \sin\theta}{m} = \frac{(1.0\,\text{mm}/200)(\sin 30^\circ)}{m} = \frac{2500\,\text{nm}}{m}$$

where $m = 1, 2, 3 \cdots$. In the visible light range m can assume the following values: $m_1 = 4$, $m_2 = 5$ and $m_3 = 6$. The corresponding wavelengths are $\lambda_1 = 2500\,\text{nm}/4 = 625\,\text{nm}$, $\lambda_2 = 2500\,\text{nm}/5 = 500\,\text{nm}$, and $\lambda_3 = 2500\,\text{nm}/6 = 416\,\text{nm}$.

(b) The colors are orange (for $\lambda_1 = 625\,\text{nm}$), blue-green (for $\lambda_2 = 500\,\text{nm}$), and violet (for $\lambda_3 = 416\,\text{nm}$).