

29. Bright interference fringes occur at angles θ given by $d \sin \theta = m\lambda$, where m is an integer. For the slits of this problem, $d = 11a/2$, so $a \sin \theta = 2m\lambda/11$ (see Sample Problem 36-5). The first minimum of the diffraction pattern occurs at the angle θ_1 given by $a \sin \theta_1 = \lambda$, and the second occurs at the angle θ_2 given by $a \sin \theta_2 = 2\lambda$, where a is the slit width. We should count the values of m for which $\theta_1 < \theta < \theta_2$, or, equivalently, the values of m for which $\sin \theta_1 < \sin \theta < \sin \theta_2$. This means $1 < (2m/11) < 2$. The values are $m = 6, 7, 8, 9,$ and 10 . There are five bright fringes in all.