(a) The ball's effective wavelength is given by

\[ \lambda = \frac{h}{p} = \frac{h}{mv} \]  \hspace{1cm} (1)

If we assume the baseball is moving at about 70 mi/h or 30 m/s, and its mass is about 0.15 kg, then the wavelength of the baseball is

\[ \lambda = \frac{6.63 \times 10^{-34} \text{ J} \cdot \text{s}}{(0.15 \text{ kg})(30 \text{ m/s})} \left( \frac{1 \text{ kg} \cdot \text{m}^2/\text{s}^2}{1 \text{ J}} \right) = 1.5 \times 10^{-34} \text{ m} \]  \hspace{1cm} (2)

(b) We do not have to consider the wave nature of a pitched baseball because its wavelength is so small that it is effectively zero in our macroscopic world. The ball has no chance of diffracting around the bat since its wavelength is much smaller than the bat.