8. The Heisenberg uncertainty principle states that the product of the uncertainties in position and momentum must be

$$\Delta p \ \Delta x \geq h$$

The minimum uncertainty is obtained for the case of the equality, so we have

$$\Delta p \ \Delta x = h$$

We divide both sides of the equation by $\Delta p$ to get $\Delta x$

$$\Delta x = h / \Delta p$$

$$\Delta x = (6.626 \times 10^{-34} \text{ J s}) / (5.0 \times 10^{-20} \text{ kg m/s})$$

$$\Delta x = 1.32 \times 10^{-14} \text{ m}$$