P #9

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$m = 5.00\,g = .005\,kg$

$v = 300\,m/s$

$c = 128\ J/kg \cdot °C$

$\frac{1}{2}$ KE is transformed into Q

$$\frac{1}{2} \cdot KE = Q_{gained}$$

$$\frac{1}{2} \cdot \left(\frac{1}{2} \cdot m \cdot v^2\right) = m \cdot c \cdot \Delta T$$

$$\frac{1}{2} \cdot \left(\frac{1}{2} \cdot .005\,kg \cdot (300\,m/s)^2\right) = (.005\,kg)(128\ J/g\,°C) \cdot \Delta T$$

$$\boxed{\Delta T = 176°C}$$