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1.

$GPE = mgh$

$= (5.5\,kg)(9.81\,m/s^2)\,14\,m$

$= 770$ JOULES J

2. $KE = \frac{1}{2} m v^2$

$= (1040\,kg)(22.0\,m/s)^2$

$= 252{,}000\,J$

3. $KE = \frac{1}{2} m v^2$

$15{,}000\,J = \frac{1}{2}(57\,kg)\,v^2$

$30{,}000\,J = (57\,kg)\,v^2$

$526 = v^2$

$23\,m/s = v$

4. $KE = \frac{1}{2} m v^2$

$v = 52\,Km/HR$

$\frac{52\,Km}{1} \times \frac{1000\,m}{1\,Km} = 52000\,m$

$\frac{1\,HR}{1} \times \frac{60\,MIN}{1\,HR} \times \frac{60\,SEC}{1\,MIN} = \frac{3600\,SEC}{1}$

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52,000 m / 3600 SEC

14.4 = m/s

$KE = \frac{1}{2} m v^2$

$290{,}000 J = \frac{1}{2}(m)(14.4\ m/s)^2$

$589{,}000 J = m(207.4\ m^2/s^2)$

$589{,}000 J = m(207.4\ m^2/s^2)$

$2800\ Kg = m$

5. $GPE = mgh$

$140 J = (m)(9.81\ m/s^2)(2.2\ m)$

$140 J = m(21.6)$

$6.5\ Kg = m$

6. $GPE = mgh$

$? = (86 g)(9.81\ m/s^2)(1.6\ m)$

$1.3 J = (0.086\ Kg)(9.81\ m/s^2)(1.6\ m)$

$\frac{86 g}{1} \times \frac{1\ Kg}{1000 g} = 0.086\ Kg$

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