

Question Number	Answer	Mark
<b>13(a)</b>	<p>Use of <math>E_k = \frac{1}{2} m v^2</math> (1)</p> <p><math>E_k = 2.1 \times 10^9</math> (J) (1)</p> <p><u>Example calculation</u>  <math>E_k = 0.5 \times 7.2 \times 10^5 \text{ kg} \times (76 \text{ m s}^{-1})^2 = 2.08 \times 10^9 \text{ J}</math></p>	<b>2</b>
<b>13(b)</b>	<p>Use of <math>P = W / t</math> (1)</p> <p><math>D = 8.0 \times 10^8 \text{ J}</math> (ecf from (a)) (1)</p> <p><u>Example calculation</u>  <math>W = 16 \times 10^6 \text{ W} \times 180 \text{ s} = 2.9 \times 10^9 \text{ J}</math>  <math>D = 2.9 \times 10^9 \text{ J} - 2.1 \times 10^9 \text{ J} = 8.0 \times 10^8 \text{ J}</math></p>	<b>2</b>
	<b>Total for question 13</b>	<b>4</b>