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|---|---|---|---|
| 1. | Gain in GPE<br>$= 2.6g \times 20 \sin\alpha \left( = 2.6g \times 20 \times \frac{5}{13} \right)$ | M1 | Or equivalent. Condone sine / cosine confusion |
| | $F_{\max} = \frac{1}{5} \times 2.6g \cos\alpha \left( = \frac{1}{5} \times 2.6g \times \frac{12}{13} \right)$ | M1 | Or equivalent. Condone sine / cosine confusion |
| | Work done against friction $= 20F_{\max}$ | M1 | Follow their $F_{\max}$ . Must have an expression for $F_{\max.}$<br>Independent of the preceding M1 |
| | Total work done<br>$= 2.6g \times 20 \sin\alpha + 4 \times 2.6g \cos\alpha$ | DM1 | Dependent on preceding M marks<br>Must be adding the two relevant expressions |
| | $= 290$(J) | A1 | 2 sf or 3 sf<br>Do not ISW |
| | | | NB: Omission of $g$ should be marked as an accuracy error |
| | | **[5]** | |
| | | **(5)** | |
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