Elastic potential energy

Answers

Further Maths topic practice

This topic online

Q	Answer	Marks
1	**a)** 2 J **b)** 2.5 J	4
2	**a)** 1.8 J **b)** 3 m s^{-1}	4
3	**a)** 0.424 m **b)** 10.6 N	5
4	**a)** 0.2 m **b)** 2.1 m s^{-1} **c)** 1.57 m s^{-1}	8
5	**a)** x = 1 (shown) **b)** 5.6 m s^{-1}	8
6	**a)** 1.74 m s^{-1} **b)** 0.816 m	7
7	**a)** 2 m **b)** 14.7 m s^{-2} up the plane	7
8	**a)** 2.23 m s^{-1} **b)** 0.318 m **c)** P does not remain at rest: 11.76 N > 3.92 N, so it slides back down the plane	9
9	**a)** 2.8 m s^{-1} **b)** 0.3 m	7
10	**a)** 0.4 **b)** 2.42 m s^{-1}	8
11	**a)** $\lambda = 1568$ (shown) **b)** 17.9 m s^{-1} **c)** 19.6 m s^{-1} **d)** the true greatest speed would be lower (energy is lost to air resistance)	10
12	**a)** $\mu = 0.3$ (shown) **b)** $T - 2g \sin\alpha = 14.112 - 11.76 = 2.352 \text{ N} \leq 4.704 \text{ N}$ = maximum friction, so P stays at rest (shown) **c)** 1.01 m s^{-1}	12

Full worked solutions, written out by hand, are on the solutions sheet for this topic.

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