Hooke's law and elastic strings

Answers

Further Maths topic practice

This topic online

Q	Answer	Marks
1	**a)** 9 N **b)** 12 N	3
2	0.796 m	3
3	**natural length)** 0.9 m **modulus)** 58.8 N	5
4	**a)** m = 1.25 **b)** F = 9.8	5
5	**a)** 1.67 m **b)** 8.24 N	6
6	**a)** 0.7 m **b)** 2.5 N in each spring **c)** 0.8 + 1.2 = 2 > 1.8, so at least one string would be slack; strings cannot be in compression, so P would rest anywhere with both strings slack (0.6 ≤ AP ≤ 0.8)	7
7	**a)** 6.53 N **b)** λ = 9.8 (shown)	6
8	**a)** 1.8 m **b)** tension in AP 39.2 N, tension in PB 19.6 N	7
9	0.850 m ≤ OP ≤ 1.08 m	8
10	**a)** 7.35 N **b)** 36.9° **c)** 1.5 m	8
11	**a)** 0.302 m **b)** 1.5 kg; 0.378 m	7
12	**a)** $1.2^2 + 1.6^2 = 4 = 2^2$, so angle APB = 90° (shown) **b)** tension in AP 19.6 N, tension in BP 14.7 N **c)** AP: 98 N; BP: 44.1 N	10

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

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