Momentum and impulse as vectors

Answers

Further Maths topic practice

This topic online

Q	Answer	Marks
1	12.8 m s^{-1}	3
2	**a)** (-2.8i + 1.2j) N s **b)** 3.05 N s	4
3	**a)** (2.5i - 6j) N s **b)** 20 m s^{-1}	4
4	**a)** (4i + 4j) m s^{-1} **b)** 35.5°	5
5	**a)** $\lambda = 1$ **b)** 12 J	6
6	**a)** 7.63 N s **b)** 147°	6
7	**a)** $v = (3 + 5\lambda)i + (4 - 10\lambda)j$ shown **b)** $\lambda = 0.4$ **c)** 53.1°	7
8	**a)** (0.6i + 3.2j) m s^{-1} **b)** 3.26 m s^{-1} **c)** 5.37 N s **d)** 12 J	8
9	**a)** $a = -2$ **b)** 6.32 m s^{-1} $(2\sqrt{10})$ **c)** 135°	7
10	**a)** (5i + 4j) m **b)** (8i + 5j) m s^{-1} **c)** shown, $t = 4$ **d)** 9.5 J	9
11	**a)** (3i + j) m s^{-1} **b)** $\lambda = 2$ **c)** 18.4°	10
12	**a)** (1.5i + j) m s^{-1} **b)** 9i N s **c)** The spheres are smooth, so the impulse acts along the line of centres: the line of centres is parallel to i **d)** 29.25 J (29.3 J to 3 s.f.) **e)** 128°	12

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

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