

Solomon Practice Paper

Mechanics 3C

Time allowed: 90 minutes

Centre: www.CasperYC.club

Name:

Teacher:

Question	Points	Score
1	7	
2	7	
3	9	
4	11	
5	12	
6	14	
7	15	
Total:	75	

How I can achieve better:

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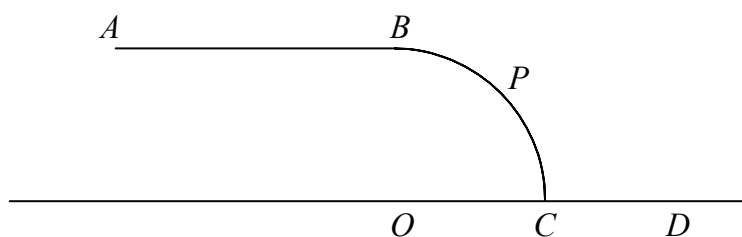


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7. Figure shows a vertical cross-section through part of a ski slope consisting of a horizontal section AB followed by a downhill section BC .



The point O is on the same horizontal level as C and BC is a circular arc of radius 30 m and centre O , such that $\angle BOC = 90^\circ$.

A skier of mass 60kg is skiing at 12ms^{-1} along AB .

- (a) Assuming that friction and air resistance may be neglected, find the magnitude of the loss in reaction between the skier and the surface at B . [4]

The skier subsequently leaves the slope at the point P .

- (b) Find, correct to 3 significant figures, the speed at which the skier leaves the slope. [8]
 (c) Find, correct to 3 significant figures, the speed of the skier immediately before hitting the ground again at the point D which is on the same horizontal level as C . [3]

Total: 15

