1. Two particles, A and B, have masses m and $3m$ respectively. The particles are connected by a light inextensible string. Initially A and B are at rest on a smooth horizontal plane with the string slack.

Particle A is then projected along the plane away from B with speed U.

Given that the common speed of the particles immediately after the string becomes taut is S

(a) find S in terms of U.

(2)

(b) Find, in terms of m and U, the magnitude of the impulse exerted on A immediately after the string becomes taut.

(3)

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Question 1 continued

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