

Advanced Higher Maths  
SQA 2023 Paper 2  
Question 13

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Points scored in the long jump element of the decathlon can be calculated using a solution of the differential equation

$$(m - 220) \frac{dP}{dm} = 1.4P, m > 220$$

where  $m$  is the distance jumped in centimetres and  $P$  the points scored.

Given that a jump of 807 centimetres scores 1079 points, find an expression for  $P$  in terms of  $m$ .

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Answer:

$$P = 0.14(m - 220)^{1.4}$$