

Higher Maths
SQA 2022 Paper 2
Question 10



The heptathlon is an athletics contest made up of seven events.

Athletes score points for each event.

In the 200 metres event, the points are calculated using the formula

$$P = 4.99087(42.5 - T)^{1.81}$$

where P is the number of points awarded, and T is the athlete's time, in seconds.

- (a) Calculate how many points would be awarded for a time of 24.55 seconds in the 200 metres event.

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In the long jump event, the points are calculated using the formula

$$P = 0.188807(D - 210)^k$$

where P is the number of points awarded, D is the distance jumped, in centimetres, and k is a constant.

- (b) Given that 850 points are awarded for a jump of 600 cm, calculate the value of k .

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Answers:

(a) 929

(b) 1.41