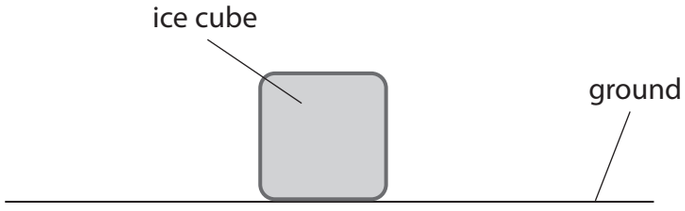
9 This is a question about a melting ice cube.

(a) The diagram shows an ice cube placed on the ground.



(i) The mass of the ice cube is 3.7 g and its area of contact with the ground is 2.6×10^{-4} m^2.

Calculate the pressure the ice cube exerts on the ground.

(4)

pressure = ... Pa

(ii) The ice cube melts and becomes a puddle with a larger cross-sectional area.

Explain how the pressure of the ice cube on the ground changes when it melts.

(2)

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(b) Ice melts at a temperature of 0 °C.

On the axes, sketch how the temperature of the ice cube changes as it rises from a temperature of –10 °C to a temperature of 20 °C.

(3)

(c) Explain the changes that occur when a solid melts.

Refer to particles in your answer.

(2)

(Total for Question 9 = 11 marks)

TOTAL FOR PAPER = 70 MARKS

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