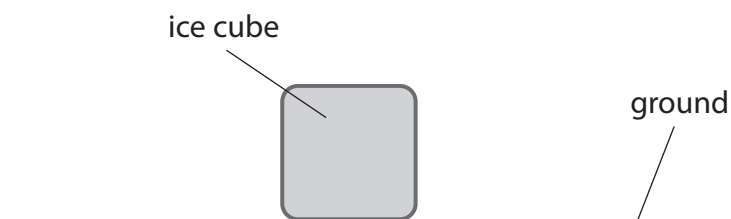**9** This is a question about a melting ice cube.

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

ice cube

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)

....

....

....

(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)

Temperature
in °C

20

0 ———————————————————→ Time

−10

(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

P 5 8 3 7 4 A 0 1 7 2 0