

Chapter 16 Problem 18 †

Given

$$T = 77.3 \text{ K}$$

Solution

Find the boiling point of nitrogen in Celsius.

$$T_c = T - 273.15 \text{ K}$$

$$T_c = 77.3 \text{ K} - 273.15 \text{ K} = -195.9^\circ \text{ C}$$

Find the boiling point of nitrogen in Fahrenheit.

$$T_f = \frac{9}{5}T_c + 32$$

$$T_f = \frac{9}{5}(-195.9^\circ \text{ C}) + 32 = -321^\circ \text{ F}$$

†Problem from Essential University Physics, Wolfson