

The average global temperature on Mars is 210 K. What are the values in $^{\circ}\text{C}$ and $^{\circ}\text{F}$?

Given:

Average temperature on Mars

$$T(\text{K}) = 210 \text{ K}$$

Determine: Average temperature of Mars: $T(^{\circ}\text{C})$ and $T(^{\circ}\text{F})$

(i) To calculate $T(^{\circ}\text{C})$, use formula:

$$T(^{\circ}\text{C}) = T(\text{K}) - 273 \text{ -----(1)}$$

Substituting for $T(\text{K})$ in (1):

$$T(^{\circ}\text{C}) = 210 - 273 = - 63^{\circ} \text{ C}$$

(ii) To calculate $T(^{\circ}\text{F})$, use formula:

$$T(^{\circ}\text{F}) = [(9 / 5) \times T(^{\circ}\text{C})] + 32 \text{ -----(2)}$$

Substituting for $T(^{\circ}\text{C})$ in (2):

$$T(^{\circ}\text{F}) = [(9 / 5) \times - 63] + 32 = - 81^{\circ} \text{ F}$$