

Lesson-15 : Temperature

Exercise-1

1. (a) (ii) Normal human body temperature = $98.6^{\circ}\text{F} = 37^{\circ}\text{C}$
(b) (iii) $40^{\circ}\text{C} = \left(\frac{9}{5} \times 40 + 32\right)^{\circ}\text{F} = \left(\frac{360}{5} + 32\right)^{\circ}\text{F} = (72 + 32)^{\circ}\text{F} = 104^{\circ}\text{F}$
2. (a) 99° (b) 38°
3. (a) $35.6^{\circ}\text{F} = [(35.6 - 32) \times \frac{5}{9}]^{\circ}\text{C} = (3.6 \times \frac{5}{9})^{\circ}\text{C} = 2^{\circ}\text{C}$
(b) $77^{\circ}\text{F} = [(77 - 32) \times \frac{5}{9}]^{\circ}\text{C} = (45 \times \frac{5}{9})^{\circ}\text{C} = (\frac{225}{9})^{\circ}\text{C} = 25^{\circ}\text{C}$
(c) $226.4^{\circ}\text{F} = [(226.4 - 32) \times \frac{5}{9}]^{\circ}\text{C} = [194.4 \times \frac{5}{9}]^{\circ}\text{C} = (\frac{972}{9})^{\circ}\text{C} = 108^{\circ}\text{C}$
(d) $131^{\circ}\text{F} = [(131 - 32) \times \frac{5}{9}]^{\circ}\text{C} = (\frac{99}{9} \times \frac{5}{1})^{\circ}\text{C} = 55^{\circ}\text{C}$
(e) $95^{\circ}\text{F} = [(95 - 32) \times \frac{5}{9}]^{\circ}\text{C} = (\frac{63}{9} \times \frac{5}{1})^{\circ}\text{C} = 35^{\circ}\text{C}$
(f) $185^{\circ}\text{F} = [(185 - 32) \times \frac{5}{9}]^{\circ}\text{C} = (153 \times \frac{5}{9})^{\circ}\text{C} = (\frac{765}{9})^{\circ}\text{C} = 85^{\circ}\text{C}$
(g) $203.9^{\circ}\text{F} = [(203.9 - 32) \times \frac{5}{9}]^{\circ}\text{C} = [171.9 \times \frac{5}{9}]^{\circ}\text{C} = (\frac{859.5}{9})^{\circ}\text{C} = 95.5^{\circ}\text{C}$
(h) $104^{\circ}\text{F} = [(104 - 32) \times \frac{5}{9}]^{\circ}\text{C} = (\frac{72}{9} \times \frac{5}{1})^{\circ}\text{C} = 40^{\circ}\text{C}$
4. (a) $27^{\circ}\text{C} = (\frac{9}{5} \times 27 + 32)^{\circ}\text{F} = (48.6 + 32)^{\circ}\text{F} = 80.6^{\circ}\text{F}$
(b) $45^{\circ}\text{C} = (\frac{9}{5} \times 45 + 32)^{\circ}\text{F} = (81 + 32)^{\circ}\text{F} = 113^{\circ}\text{F}$
(c) $72^{\circ}\text{C} = (\frac{9}{5} \times 72 + 32)^{\circ}\text{F} = (129.6 + 32)^{\circ}\text{F} = 161.6^{\circ}\text{F}$
(d) $20^{\circ}\text{C} = (\frac{9}{5} \times 20 + 32)^{\circ}\text{F} = (36 + 32)^{\circ}\text{F} = 68^{\circ}\text{F}$
(e) $37^{\circ}\text{C} = (\frac{9}{5} \times 37 + 32)^{\circ}\text{F} = (66.6 + 32)^{\circ}\text{F} = 98.6^{\circ}\text{F}$

$$(f) \quad 95^{\circ}\text{C} = \left(\frac{9}{5} \times \cancel{95}^{19} + 32\right)^{\circ}\text{F} = (171 + 32)^{\circ}\text{F} = 203^{\circ}\text{F}$$

$$(g) \quad 75^{\circ}\text{C} = \left(\frac{9}{5} \times \cancel{75}^{15} + 32\right)^{\circ}\text{F} = (135 + 32)^{\circ}\text{F} = 167^{\circ}\text{F}$$

$$(h) \quad 30^{\circ}\text{C} = \left(\frac{9}{5} \times \cancel{30}^6 + 32\right)^{\circ}\text{F} = (54 + 32)^{\circ}\text{F} = 86^{\circ}\text{F}$$

Mental Maths Corner

1. $100^{\circ}\text{C} - 78^{\circ}\text{C} = 22^{\circ}\text{C}$

2. $\quad \quad \quad ^{\circ}\text{C} = \frac{9}{5}^{\circ}\text{C} + 32$

$$\Rightarrow \quad \frac{9}{5}^{\circ}\text{C} - ^{\circ}\text{C} = -32$$

$$\Rightarrow \quad \frac{4}{5}^{\circ}\text{C} = -32$$

$$\Rightarrow \quad ^{\circ}\text{C} = \frac{-32 \times 5}{4} = -40^{\circ}$$

So, $-40^{\circ}\text{C} = -40^{\circ}\text{F}$