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Exercise 2(I)

1) Reduce the following angles into degree.

i) 70^g

→ Soln,

Here,

Since, $1^g = \left[\frac{9}{10}\right]^\circ$

Or, $70^g = \left[\frac{9}{10} \times 70\right]^g = 63^\circ$

$\therefore 70^g = 63^\circ$

ii) 50^g

→ Soln,

Here,

$1^g = \left[\frac{9}{10}\right]^\circ$

or, $50^g = \left[\frac{9}{10} \times 50\right]^\circ = 45^\circ$

$\therefore 50^g = 45^\circ$

iii) 25^g

→ Soln,

Here,

$$1^g = \left[\frac{9}{10}\right]^\circ$$

or, $25^g = \left[\frac{9}{10} \times 25\right]^\circ = 22.5^\circ$

$\therefore 25^g = 22.5^\circ$

iv) 45^g

→ Soln,

Here,

$$1^g = \left[\frac{9}{10}\right]^\circ$$

or, $45^g = \left[\frac{9}{10} \times 45\right]^\circ = 40.5^\circ$

$\therefore 45^g = 40.5^\circ$

v) $30^g 50'$

→ Soln,

Here,

① $30^g 50' = \left[30 + \frac{50}{100}\right]^g$

$= [30 + 0.5]^g$

$= [30.5]^g$

Now,

$1^g = \left[\frac{9}{10}\right]^\circ$

So,

$30.5^g = \left[\frac{9}{10} \times 30.5\right]^\circ$

$= 27.45^\circ$

$\therefore 30^g 50' = 20.45^\circ$

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2) Reduce the following angles into grades:

i) 45°

→ Soln,

Here,

$$1^\circ = \left[\frac{10}{9}\right]^g$$

Now,

$$45^\circ = \left[\frac{10}{9} \times \cancel{45}^{5}\right]^g = 50^g$$

$\therefore 45^\circ = 50^g$

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ii) 63°

→ Soln,

Here,

$$1^\circ = \left[\frac{10}{9}\right]^g$$

Now,

$$63^\circ = \left[\frac{10}{9} \times 63\right]^g = 70^g$$

$\therefore 63^\circ = 70^g$

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iii) 18°

→ Soln,

Here,

$$1^\circ = \left[\frac{10}{9}\right]^g$$

Now,

$$18^\circ = \left[\frac{10}{9} \times 18^2\right]^g = 20^g$$

$\therefore 18^\circ = 20^g$

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iv) 21°

→ Soln,

Here,

$$1^\circ = \left[\frac{10}{9}\right]^g$$

Now,

$$21^\circ = \left[\frac{10}{9} \times 21\right]^g = 23.333^g$$

~~$= 23.33^g$~~

$\therefore 21^\circ = 23.3339$

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v) $32^\circ 15'$

→ Soln,

Here,

$$32^\circ 15' = \left[32 + \frac{15}{60}\right]^\circ = [32 + 0.25]^\circ$$

$$= 32.25^\circ$$

Now,

$$1^\circ = \left[\frac{10}{9}\right]^g$$

So,

$$32.25^\circ = \left[\frac{10}{9} \times 32.25\right]^g$$

$$= 35.833^g$$

$\therefore 32^\circ 15' = 35.833^g$