VIDYA BHAWAN BALIKA VIDYAPITH

SHAKTI UTTHAN ASHRAM, LAKHISARAI

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1. Find the radian measures corresponding to the following degree measures:

(i) 25° (ii) – 47° 30' (iii) 240° (iv) 520°

Solution:

(i) 25°

Here 180° = π radian

It can be written as

$$25° = \frac{\pi}{180} \times 25 \text{ radian}$$

So we get

$$= \frac{5\pi}{36} \text{ radian}$$

(ii) – 47° 30'

Here 1° = 60'

It can be written as

$$-47°\ 30' = -47\frac{1}{2} \text{ degree}$$

So we get

$$= \frac{-95}{2} \text{ degree}$$

Here 180° = π radian

$$\frac{-95}{2} \text{ degree} = \frac{\pi}{180} \times \left(\frac{-95}{2}\right) \text{ radian}$$

It can be written as

$$= \left(\frac{-19}{36 \times 2}\right)\pi \text{ radian} = \frac{-19}{72}\pi \text{ radian}$$

We get

$$-47°\ 30' = \frac{-19}{72}\pi \text{ radian}$$

(iii) 240°

Here 180° = π radian

It can be written as

$$240° = \frac{\pi}{180} \times 240 \text{ radian}$$

So we get

$$= \frac{4}{3}\pi \text{ radian}$$

(iv) 520°

Here 180° = π radian

It can be written as

$$520° = \frac{\pi}{180} \times 520 \text{ radian}$$

So we get

$$= \frac{26\pi}{9} \text{ radian}$$

2. Find the degree measures corresponding to the following radian measures (Use π = 22/7)

(i) 11/16

(ii) -4

(iii) 5π/3

(iv) 7π/6

Solution:

(i) 11/16

Here π radian = 180°

$$\frac{11}{16}\ \text{radain} = \frac{180}{\pi} \times \frac{11}{16}\ \text{degree}$$

We can write it as

$$= \frac{45 \times 11}{\pi \times 4} \text{degree}$$

So we get

$$= \frac{45 \times 11 \times 7}{22 \times 4}\ \text{degree}$$

$$= \frac{315}{8}\ \text{degree}$$

$$= 39\frac{3}{8}\ \text{degree}$$

Take $1^{o} = 60'$

$$= 39° + \frac{3 \times 60}{8}\ \text{minutes}$$

We get

$$= 39° + 22' + \frac{1}{2}\ \text{minutes}$$

Consider $1' = 60''$

$= 39^{o}\ 22'\ 30''$