STD – 9 MATHS

CHAPTER - 1

NUMBER SYSTEM

EXERCISE - 1.5 (Q.2 to 3)

Q.2. Simplify each of the following expressions:

(i)
$$(3 + \sqrt{3})(2 + \sqrt{2})$$

$$= (3 + \sqrt{3}) (2 + \sqrt{2})$$

$$= 3 (2 + \sqrt{2}) + \sqrt{3}(2 + \sqrt{2})$$

= Opening the brackets, we get, $3 \times 2 + (3 \times \sqrt{2}) + (\sqrt{3} \times 2) + (\sqrt{3} \times \sqrt{2})$

$$= 6 + 3\sqrt{2} + 2\sqrt{3} + \sqrt{6}$$

(ii)
$$(3 + \sqrt{3})(3 - \sqrt{3})$$

= Using identity (a + b) (a - b) = a^2 - b^2

$$a = 3$$
 $b = \sqrt{3}$

$$= [(3)^2 - (\sqrt{3})^2]$$

$$= 9 - 3$$

(iii)
$$(\sqrt{5} + \sqrt{2})$$

= Using identity
$$(a + b)^2$$

$$= a^2 + 2ab + b^2$$

$$a = \sqrt{5} \quad b = \sqrt{2}$$

$$= (\sqrt{5})^2 + 2(\sqrt{2})(\sqrt{5}) + (\sqrt{2})^2$$

$$= 5 + 2\sqrt{10} + 2$$

$$= 7 + 2\sqrt{10}$$

(iv)
$$(\sqrt{5} - \sqrt{2})(\sqrt{5} + \sqrt{2})$$

= Using identity (a + b) (a - b)

$$= a^2 - b^2$$

$$a = \sqrt{5} \quad b = \sqrt{2}$$

$$= [(\sqrt{5})^2 - (\sqrt{2})^2]$$

$$= (5 - 2)$$

Q.3. Recall, π is defined as the ratio of the circumference (say c) of a circle to its diameter (say d). That is, $\pi = \frac{c}{d}$. This seems to contradict the fact that π is irrational. How will you resolve this contradiction?

> There is no contradiction.

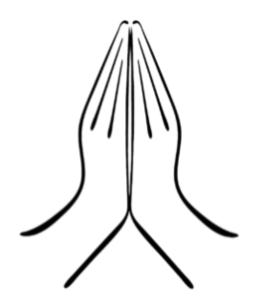
When we measure a value with a scale, we only obtain an approximate value.

We never obtain an exact value.

Therefore, we may not realize whether c or d is irrational.

The value of π is almost equal to $\frac{22}{7}$ or 3.142857...

Thanks



For watching