



Algebraic Identities Ex 4.1 Q7

**Answer :**

In the given problem, we have to find  $x - \frac{1}{x}$

Given  $x^2 + \frac{1}{x^2} = 66$

Adding and subtracting 2 on left hand side

$$x^2 + \frac{1}{x^2} + 2 - 2 = 66$$

$$\left(x^2 + \frac{1}{x^2} - 2 \times x \times \frac{1}{x}\right) + 2 = 66$$

$$\left(x - \frac{1}{x}\right)^2 + 2 = 66 \quad [\text{Using identity } (x-y)^2 = x^2 - 2xy + y^2]$$

$$\left(x - \frac{1}{x}\right)^2 = 66 - 2$$

$$\left(x - \frac{1}{x}\right)^2 = 64$$

$$\left(x - \frac{1}{x}\right) = \sqrt{64}$$

$$x - \frac{1}{x} = \sqrt{8 \times 8}$$

$$x - \frac{1}{x} = \pm 8$$

Hence the value of  $x - \frac{1}{x}$  is  $\boxed{\pm 8}$

Algebraic Identities Ex 4.1 Q8

**Answer :**

In the given problem, we have to find  $\left(x + \frac{1}{x}\right)$

Given  $x^2 + \frac{1}{x^2} = 79$

Adding and subtracting 2 on left hand side,

$$x^2 + \frac{1}{x^2} + 2 - 2 = 79$$

$$\left(x^2 + \frac{1}{x^2} + 2 \times x \times \frac{1}{x}\right) - 2 = 79$$

$$\left(x + \frac{1}{x}\right)^2 - 2 = 79$$

$$\left(x + \frac{1}{x}\right)^2 = 79 + 2$$

$$\left(x + \frac{1}{x}\right)^2 = 81$$

$$\left(x + \frac{1}{x}\right) = \sqrt{81}$$

$$x + \frac{1}{x} = \sqrt{9 \times 9}$$

$$x + \frac{1}{x} = \pm 9$$

Hence the value of  $\left(x + \frac{1}{x}\right)$  is  $\boxed{\pm 9}$

\*\*\*\*\* END \*\*\*\*\*