

Q no. 1 Evaluate the following -

i) 97^2

ii) $185 \times 185 - 115 \times 115$

iii) $\frac{7.83 \times 7.33 - 1.17 \times 1.17}{6.66}$

Q no. 2 If $x + \frac{1}{x} = 11$, find the value of

i) $x^2 + \frac{1}{x^2}$

ii) $x^4 + \frac{1}{x^4}$

iii) $x^3 + \frac{1}{x^3}$

Q no. 3 if $x^2 + \frac{1}{x^2} = 79$. Find the value of

i) $x^3 + \frac{1}{x^3}$

ii) $x^3 - \frac{1}{x^3}$

Q no. 4 Expand i) $(x^2 + y^2 - z^2)^2 - (x^2 - y^2 + z^2)^2$ ii) $\left(\frac{x}{y} + \frac{y}{z} + \frac{z}{x}\right)^2$

Q no. 5 If $a + b = 10$ & $ab = 16$, find $a^2 - ab + b^2$ and $a^2 + ab + b^2$.

Q no. 6 if $a^2 + b^2 + c^2 = 250$ & $ab + bc + ca = 3$, find $a + b + c$.

Q no. 7 if $x^4 + \frac{1}{x^4} = 47$, find the value of $x^3 + \frac{1}{x^3}$

Q no. 8 if $x + y + z = 8$ and $xy + yz + zx = 20$, find $x^3 + y^3 + z^3 - 3xyz$.

Q no. 9 if $p = 2 - a$, prove that $a^3 + 6ap - 8 = 0$

Q no. 10 find 'a' and 'b', if $x=0$ and $x=-1$ are the zeroes of $p(x) = 2x^3 - 3x^2 + ab + b$

Q no. 11 what should be added to $x^3 + 3x^2 - 12x + 19$ so that the result is exactly divisible by $x^2 + x - 6$

Q no. 12 what should be subtracted from $x^3 - 6x^2 - 15x + 80$ so that the result is exactly divisible by $x^2 + x - 12$