

Mathematics

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(Chapter – 2) (Polynomials)(Exemplar Problems)

(Class – IX)

Exercise 2.3

Question 19:

For what value of m is $x^3 - 2mx^2 + 16$ divisible by $x + 2$?

Answer 19:

We have $p(x) = x^3 - 2mx^2 + 16$, $g(x) = x + 2$

Put $g(x) = 0$

$\Rightarrow x + 2 = 0$

$\Rightarrow x = -2$

According to factor theorem if $p(x)$ is divisible by $g(x)$, the remainder $p(-2)$ should be zero.

Remainder = $p(-2) = 0$

$\Rightarrow (-2)^3 - 2m(-2)^2 + 16 = 0$

$\Rightarrow -8 - 8m + 16 = 0$

$\Rightarrow 8 - 8m = 0$

$\Rightarrow 8m = 8$

$\Rightarrow m = 1$

