

India's Number 1 Education App

MATHS

BOOKS - MODERN PUBLICATION

POLYNOMIALS

Example

1. Which of the following expression are polynomials

$$x^3 - 7x + 3$$



Watch Video Solution

2. Which of the following expression are polynomials

$$3\sqrt{x} + 7$$



3. Which of the following expression are polynomials

$$x + \frac{7}{x} + 1$$



4. Which of the following expression are polynomials

$$3\sqrt{x} + 8$$



5. Which of the following expression are polynomials

x-7



Watch Video Solution

6. Which of the following expression are polynomials

0



7. Write the degree of each of the followng polynomials

$$2x-\sqrt{5}$$



8. Write the degree of each of the followng polynomials

$$8x^4 - 37x + 6x^9$$



9. Write the degree of each of the followng polynomials

10. Write the degree of each of the followng polynomials

9



11. Write:

the coefficient of x^3 in $3x+x^2-6x^3+x^4$



12. Write:

the coefficient of x^2 in $\frac{\pi}{6}x^2+5x-3$



13. Write the degree of the followng polynomials

the coefficient of x^3 in $3x^2 - 5$



Watch Video Solution

14. Classify the following polynomials as linear, quadratic, cubic and biquadratic polynomials:

5x-2, x^2+x+7 , $2x+3x^3$, 5y, z^2+1 , $7x^4+4x^3+7x-2$



Watch Video Solution

15. Classify the following polynomials as polynomials in one variable, two variables, etc:

$$x^2 - xy + 5y^2$$



Watch Video Solution

16. Classify the following polynomials as polynomials in one variable, two variables, etc:

$$x^2 - 2tx - x + 3$$



17. Classify the following polynomials as polynomials in one variable, two variables, etc:

$$t^3 + 3t^2 + 7t - 9$$



18. Classify the following polynomials as polynomials in one variable, two variables, etc:

$$xy + 2yz + 3zx$$



19. Write:

a binomial of degree 100



Watch Video Solution

20. Write:

a monomial of degree 25.



Watch Video Solution

21. Write:

a trinomial of degree 7.



Watch Video Solution



watch video Solution

23. Find the zero of the polynomial:

$$p(x)=x-4$$



24. Find the zero of the polynomial:

$$q(x) = 2x + 3$$



25. Find the zero of the polynomial:

$$r(z) = ax + b, a \neq 0$$



s(x) = 5x

Watch Video Solution

26. Find the zero of the polynomial:

- **27.** Verify that

6 is a zero of the polynomial p(x)=x-6

Watch Video Solution

- 28. Verify that $\frac{2}{7}$ is a zero of the polynoial q(x)=2-7x
 - Watch Video Solution

29. Verify that

2 and -3 are zeroes of the polynomial



30. If x=2 is a zero of $p(x)=2x^3-3x+7k$ find the value of k.



31. IF x=0 and x=2 are zeroes of

$$p(x)=2x^3-5x^2+ax+b$$
, find the value of a and b.



32. Find the remainder when the polynomial:

$$f(x) = 3x^4 - 6x^2 - 8x + 2$$
 is divided by (x-2)



33. Find the remainder when the polynomial:

$$f(x)=x^3-6x^2+13x+60$$
 is divided by (x+2)



Watch Video Solution

34. Find the remainder when the polynomial:

$$f(x)=4x^3-12x^2+11x-5$$
 is divided by (2x-1)



35. Check whether the polynomial:

$$f(x)=4x^3+4x^2-x-1$$
 is a multiple of (2x+1)



Watch Video Solution

36. If the polynomials:

$$\left(2x^3+ax^2+3x-5
ight)$$
 and $\left(x^3+x^2-2x+a
ight)$ leave the same

remainder when divided by x. find the value of a. also find the remainder in case.



37. Let R_1 and R_2 are the remainder when polynomials

$$x^3+2x^2-5ax-7$$
 and $x^3+ax^2-12x+6$ is divided by (x+1) and

(x-2) respectively. If $2R_1+R_2=6$, find the value of a.

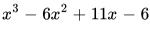


38. Show that (x-3) is a factor of:



 $2x^3 + 7x^2 - 24x - 45$.

40. Find the integral zeroes of the polynomial





- - Watch Video Solution

- **42.** Find the value of k, if the polynomial:
- $2x^4 + 3x^3 + 2kx^2 + 3x + 6$ is exactly divisible by (x+2).

41. Find the value of a, if(x-a) is a factor of x^3-a^2x+x+2

Watch Video Solution

43. Find the value of k, if the polynomial:

 $2x^4 - kx^3 + 2x + 1$ is exactly divisible by 1-2x.



- 44. Without actual division, prove that:
- $\left(2x^4-6x^3+3x^2+3x-2
 ight)$ is exactly divisible by $\left(x^2-3x+2
 ight)$
 - Watch Video Solution

- **45.** Prove that (3x-2) is a factor of $\left(3x^3+x^2-20x+12\right)$
 - Watch Video Solution

46. Use factor theorem to verify that (x+a) is a factor of $x^n + a^n$ for any odd positive integer.

47. If both (x-2) and
$$\left(x-\frac{1}{2}\right)$$
 are factors of px^2+5x+r , prove that p=r.



- **48.** What must be added to $x^4+2x^3-2x^2+x-1$ so that the resultant polynomial is divisible by $\left(x^2+2x-3\right)$?
 - Watch Video Solution

$$5x^2 - 15xy$$

Watch Video Solution

$$6(2x+3y)^2-8(2x+3y)$$



51. Factorize the following expressions

$$x(x^2+y^2+z^2)+y(x^2+y^2+z^2)-z(x^2+y^2+z^2)$$



52. Factorize the following expressions

$x^2 + 5x + x + 5$

 $x^2 + y - xy - x$



53. Factorize the following expressions

$$x^2 + \frac{1}{x^2} + 2 - 3x - \frac{3}{x}$$



55. Factorize the following expressions

$$\left(x^2+3x
ight)^2-7ig(x^2+3xig)-yig(x^2+3xig)+7y$$



56. Factorize the following expressions

$$a^2 + b^2 - 2(ab + bc - ac)$$



$$4(x+y)^2 - 28(x+y) + 49y^2$$



$$\left(5x-\frac{1}{x}\right)^2+4\left(5x-\frac{1}{x}\right)+4,\,x\neq0$$

59. Factorize the following expressions

58. Factorize the following expressions





60. Factorize the following expressions

 $2x^5-32x$

 x^3-x

$$x(x-1)-y(y-1)$$



62. Factorize the following expressions

$$1 + 2ab - a^2 - b^2$$



63. Factorize the following expressions

$$25x^2 - 10x + 1 - 36y^2$$

$$4a^2 - 9b^2 - 2a - 3b$$



x^4+4

65. Factorize the following expressions

66. Factorize the following expressions

67. Factorize the following expressions



 $x^8 - y^8$

$$x^2 + 3\sqrt{3}x - 30$$



69. Factorize the following expressions

$$5\sqrt{5}x^2 + 30x + 8\sqrt{5}$$



70. Factorize the following expressions

$$2(x+y)^2 - 9(x+y) - 5$$



71. Factorize

$$y^3 + 13y^2 + 32y + 20$$



72. What are the possible expression for the length and breadth of a rectangle whose area is $25x^2-35x+12$?



73. Expand $\left(2a-b+c\right)^2$



74. Factorize: $4x^2 + 9y^2 + 16z^2 + 12xy - 24yz - 16xz$



75. Evaluate: $(998)^2$



76. Expand: $(4x + 3y)^3$



77. Expand: $\left(2a-\frac{2}{a}\right)^3$.



78. Evaluate: $\left(95\right)^3$



79. Evaluate:	$(998)^3$



$x^3 + 81$

81. Factorize:

 $8x^3 + 64y^3$

80. Factorize:





 $8x^3 - 27y^3$

watch video Solution

83. Factorize:

 $2x^7-128x$



84. Factorize: a^6-b^6

 $8a^3 - b^3 - 4ax + 2bx$

85. Factorize:



86. Factorize:

$$(2a+3b)^3 - (2a-3b)^3$$



87. Find the product

$$(2x-y+3z)ig(4x^2+y^2+9z^2+2xy+3yz-6xzig).$$



$x^3 - 8 y^3 + 64 z^3 + 24 x y z$

88. Factorize



89. If a+b+c=6 and ab+bc+ca=1, then evaluate $a^3+b^3+c^3-3abc$

watch video Solution

90. Factorize: $a^3 - b^3 + 1 + 3ab$.



91. Factorize: $x^3 + 27y^3 + 8z^3 - 18xyz$.



92. If x+Y+z=1, xy+yz+zx=-1 and xyz=-1, find the value of $x^3+y^3+z^3$.



93. If p=2-a, prove that $a^3 + 6ap + p^3 - 8 = 0$



94. Evaluate: $25^3 - 75^3 + 50^3$



Watch Video Solution

95. Simplify:

$$rac{\left(a^{2}-b^{2}
ight)+\left(b^{2}-c^{2}
ight)^{3}+\left(c^{2}-a^{2}
ight)^{3}}{\left(a-b
ight)^{3}+\left(b-c
ight)^{3}+\left(c-a
ight)^{3}}$$



96. If x^2-1 is a factor of $px^4+qx^3+rx^2+sx+t$ then show that p+r+t=q+s=0.



Watch Video Solution

97. Given that $ax^2 + bc + 6$ leaves the remainder 1 on division by 2x+1 and $2bx^2 + 6x + a$ leaves the remainder 2 on divisible by 3x-1. find a and b.



98. If $p(x)=x^4-3x^2-ax+b$ is a polynomial such that when it is divided by x-1 and x+1, the remainders are 5 and 19 respectively. Then find the remainder when p(x) is divided by (x-2)



99. Using factor theorem, show that x-y,y-z,z-x are the factors of $x^2(y-z)+y^2(z-x)+z^2(x-y)$



100. If
$$x^2+rac{1}{x^2}=79$$
, evaluate $x^3+rac{1}{x^3}$



101. In a particular section of class IX $\frac{1}{7}$ times the square of total no. of students planned to visit an orphange, $\frac{5}{9}$ times the total no. of students planned to visit historical monuments of India while 12 students decided to given their consent for teaching slum children for a week. using above information, express the total number of students of class as a polynomial.



Watch Video Solution

102. The students of four sectoins of class 9th donated collectively Rs 8281 for the Orphange child Fund for children's living. If each student donated as much money as the number of students who donated the money, how many students donated money for the organisation? what values of depicted by these students?



Watch Video Solution

103. Which of the following expressions are polynomials in one variable and which are not? State reasons for your answer: $4x^2-3x+7$



104. Which of the following expressions are polynomials in one variable and which are not? State reasons for your answer:- $y^2+\sqrt{2}$



105. Which of the following expressions are polynomials in one variable and which are not? State reasons for your answer:- $3\sqrt{t} + t\sqrt{2}$



106. Which of the following expressions are polynomials in one variable and which are not? State reasons for your answer:- $y+\frac{2}{y}$



107. Which of the following expressions are polynomials in one variable and which are not? State reasons for your answer:- $x^{10}+y^3+t^{50}$



108. Write the coefficients of x^2 in each of the following: $2+x^2+x$



109. Write the coefficients of x^2 in each of the following: $2-x^2+x^3$



110. Write the coefficients of x^2 in each of the following: $\frac{\pi}{2}x^2+x$



Watch Video Solution

111. Write the coefficients of x^2 in each of the following: $\sqrt{2x}-1$



112. Give one example each of a binomial of degree 35, and of a monomial of degree 100.



113. Write the degree of each of the following polynomials

$$5x^3 + 4x^2 + 7x$$



114. Write the degree of each of the following polynomials

 $4-y^2$



115. Write the degree of each of the following polynomials

 $5t-\sqrt{7}$



116. Write the degree of each of the following polynomials

3?



117. Classify the following is linear, quadratic and cubic polynomial

$$x^2 + x$$
?



118. Classify the following as linear, quadratic and cubic polynomial : $x-x^3$.



119. Classify the following as linear, quadratic and cubic polynomial :



120. Classify the following is linear, quadratic and cubic polynomial

 $y + y^2 + 4$.



121. Classify the following is linear, quadratic and cubic polynomial

3t+2?

 $7x^{3}$.



122. Classify the following is linear, quadratic and cubic polynomial t^2



123. Classify the following as linear, quadratic and cubic polynomial:

Watch Video Solution



124. Find the value of the polynomial $5x - 4x^2 + 3$ at x = 0.



125. Find the value of the polynomial $5x - 4x^2 + 3$ at x = -1.



126. Find the value of the polynomial $5x-4x^2+3$ at x=2.



127. Find p(0), p(1) and p(2) for the following polynomial : $p(y) = y^2 - y + 1.$



128. Find p(0), p(1) and p(2) for the following polynomial : $p(t) = 2 + t + 2t^2 - t^3.$



129. Find p(0), p(1) and p(4) for each of the following polynomials: $p(x) = x^3$

130. Find p(0), p(1) and p(5) for each of the following polynomials:



p(x) = (x-1)(x+1)

131. Verify whether the following is zero of the polynomial, indicated against it : $p(x)=3x+1, x=-rac{1}{3}.$

132. Verify whether the following is zero of the polynomial, indicated against it : $p(x)=5x-\pi, x=\frac{4}{5}$.



133. Verify whether the following is zero of the polynomial, indicated against it : $p(x)\,=\,x^2\,-\,1,\,x\,=\,1,\,\,-\,1.$



134. Verify whether the following is zero of the polynomial, indicated against it : $p(x)=(x+1)(x-2),\,x=-1,\,2.$



135. Verify whether the following is zero of the polynomial, indicated against it : $p(x) = x^2, x = 0$.

136. Verify whether the following is zero of the polynomial, indicated against it : $p(x)=lx+m, x=-rac{m}{l}.$



137. Verify whether the following is zero of the polynomial, indicated against it : $p(x)=3x^2-1, x=-\frac{1}{\sqrt{3}}, \frac{2}{\sqrt{3}}.$



138. Verify whether the following is zero of the polynomial, indicated against it : $p(x)=2x+1, x=rac{1}{2}.$

139. Find the zero of the polynomial in each of the following cases



140. Find the zero of the polynomial in each of the following cases

$$p(x) = x - 5$$



141. Find the zero of the polynomial in each of the following cases p(x)=2x-5



142. Find the zero of the polynomial in each of the following cases p(x)=3x-2



143. Find the zero of the polynomial in each of the following cases p(x)=8x



144. Find the zero of the polynomial in each of the following cases $p(x) = ax, a \neq 0$



145. Find the zero of the polynomial in each of the following cases $p(x)=cx+d, c,d \neq 0$, are real numbers.



146. Find the remainder when $x^3 + 3x^2 + 3x + 1$ divided by

x+1

Watch Video Solution

147. Find the remainder when $x^3 + 3x^2 + 3x + 1$ divided by $x-rac{1}{2}$



Watch Video Solution

148. Find the remainder when $x^3 + 3x^2 + 3x + 1$ divided by

x-2



149. Find the remainder when x^3+3x^2+3x+1 is divided by : $x+\pi$.



150. Find the remainder when $x^3 + 3x^2 + 3x + 1$ is divided by : 5 + 2x.



151. Using Remainder Theoren, find the remainder from

$$x^3-ax^2+2x-a$$
 is divided by x-a.



152. Check whether 7 + 3x is a factor of $3x^3 + 7x$



153. Determine which of the following polynomials has (x + 1) a factor:

$$x^3 + x^2 + x + 1$$



Watch Video Solution

154. Determine which of the following polynomials has (x+1) a factor:

$$x^4 + x^3 + x^2 + x + 1$$



Watch Video Solution

155. Determine which of the following polynomials has (x+1) a factor:

$$x^4 + x^3 + x^2 + x + 1$$



Watch Video Solution

156. Determine which of the following polynomials has (x + 1) a factor:

$$x^3-x^2-ig(2+\sqrt{2}ig)x+\sqrt{2}$$

157. Use the Factor Theorem to determine whether g(x) is a factor of p(x) in each of the following cases: $p(x) = 2x^3 + x^2 - 2x - 1, g(x) = x + 1$



158. Use the Factor Theorem to determine whether g(x) is a factor of p(x) in each of the following cases: $p(x)=x^3+3x^2+3x+1, g(x)=x+2$



159. Use the Factor Theorem to determine whether g(x) is a factor of p(x) in each of the following cases: $p(x)=x^3-4x^2+x+6, \, g(x)=x-3$

160. Find the value of k, if x-1 is a factor of p(x) of the following case : $p(x) = x^2 + x + k$.



161. Find the value of k, if x-1 is a factor of p(x) of the following case

$$:p(x)=2x^2+kx+\sqrt{2}.$$



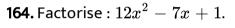
162. Find the value of k, if x-1 is a factor of p(x) of the following case

$$p(x) = kx^2 - \sqrt{2}x + 1.$$



163. Find the value of k, if x - 4 is a factor of p(x) in each of the following cases: $p(x) = kx^2 - 3x + k$









165. Factorise : $2x^2 + 7x + 3$.



Watch Video Solution

166. The factors of $6x^2 + 5x - 6$ are :

167. Factorise : $3x^2 - x - 4$.



168. Factorise : $x^3 - 2x^2 - x + 2$.



169. Factorise : $x^3 - 3x^2 - 9x - 5$.



170. Factorise : $x^3 + 13x^2 + 32x + 20$.



171. Factorise : $2y^3 + y^2 - 2y - 1$.



172. Use the suitable identity to find the following product : (x+4)(x+10).



173. Use the suitable identity to find the following product : (x+8)(x-10).



174. Use suitable identify to find the following products:

(3x+2)(3x-1)



175. Use the suitable identity to find the following product :

$$\left(y^2+\frac{3}{2}\right)\left(y^2-\frac{3}{2}\right).$$



176. Use the suitable identity to find the following product : (3-2x)(3+2x).



177. Evaluate the following product without multiplying directly :





178. Evaluate the following product without multiplying directly : $95 \times 96.$



179. Evaluate the following product without multiplying directly : 104×96 .



180. Factorise the following using appropriate identities :

 $9x^2 + 6xy + y^2$.

181. Factorise the following using appropriate identities : $4y^2-4y+1$

182. Factorise the following using appropriate identities : $x^2 - \frac{y^2}{100}$.



183. Expand each of the following, using suitable identifies:

184. Expand each of the following, using suitable identifies:

$$\left(2x-y+2\right)^2$$



 $\left(2x-y+2
ight)^2$



185. Expand the following using suitable Identities $(-2x+3y+2z)^2$.



186. Expand the following using suitable Identities : $(3a - 7b - c)^2$.



187. Expand the following using suitable Identities : $(-2x + 5y - 3z)^2$.



188. Expand the following using suitable Identities : $\left\lceil \frac{1}{4}a - \frac{1}{2}b + 1 \right\rceil^2$.



189. Factorise : $4x^2 + 9y^2 + 16z^2 + 12xy - 24yz - 16xz$.



190. Factorise : $2x^2 + y^2 + 8z^2 - 2\sqrt{2}xy + 4\sqrt{2}yz - 8xz$.



191. Write the following cube in expanded $:\left(2x+1\right) ^{3}.$



192. Write the following cube in expanded : $\left(2a-3b\right)^3$.



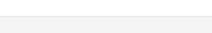
193. Write the following cube in expanded : $\left\lceil \frac{3}{2}x + 1 \right\rceil^3$.

195. Evaluate the following using suitable identity: $(99)^3$.

196. Evaluate the following using suitable identity: $(102)^3$.



194. Write the following cube in expanded :
$$\left[x - \frac{2}{3}y\right]^3$$
. Watch Video Solution







198. Factorise each of the following: $8a^3-b^3-12a^2b+6ab^2$

199. Factorise each of the following: $8a^3-b^3-12a^2b+6ab^2$

200. Factorise the following : $27 - 125a^3 - 135a + 225a^2$.

201. Factorise the following : $64a^3 - 27b^3 - 144a^2b + 108ab^2$.







202. Factorise the following : $27p^3 - \frac{1}{216} - \frac{9}{2}p^2 + \frac{1}{4}p$.



Watch Video Solution

203. Verify: $x^3 + y^3 = (x + y)(x^2 - xy + y^2)$.



204. Verify: $x^3 - y^3 = (x - y)(x^2 + xy + y^2)$.



205. Factorise each of the following:

 $27u^3 + 125x^3$



206. Factorise the following : $64m^3-343n^3$.

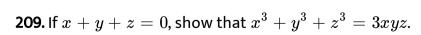


207. Factorise : $27x^3 + y^3 + z^3 - 9xyz$.



208. Verify that $x^3+y^3+z^3-3xyz=rac{1}{2}(x+y+z)\Big[(x-y)^2+(y-z)^2+(z-x)^2\Big]$







210. Without actually calculating the cubes, find the value of each of the following: $(-12)^3+(7)^3+(5)^3$



211. Without actually calculating the cubes, find the value of each of the following: ${(28)}^3 + {(\,-15)}^3 + {(\,-13)}^3$



212. Give possible expressions for the length and breadth of each of the following rectangles, in which their areas are given: Area : $25a^2-35a+12$

213. Give possible expressions for the length and breadth of each of the following rectangles, in which their areas are given: Area :



 $35y^2 + 13y - 12$

214. What are the possible expressions for the dimensions of the cuboids whose volumes are given below? Volume : $3x^2-12x$



215. What are the possible expressions for the dimensions of the cuboids whose volumes are given below? Volume : $12ky^2 + 8ky - 20k$



216. Which of the following expressions are polynomials? Justify your answer:

8?



217. Which of the following expressions are polynomials? Justify your answer:

$$\sqrt{3}x^2 - 2x$$



218. Which of the following expressions are polynomials? Justify your answer:

 $1-\sqrt{5}x$



219. Which of the following expressions are polynomials? Justify your

answer:

$$\frac{1}{5x^2} + 5x + 7$$



Watch Video Solution

220. Which of the following expressions are polynomials? Justify your

answer:

$$(x-2)(x-4)$$



Watch Video Solution

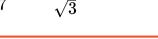
221. Which of the following expressions are polynomials? Justify your answer:



222. Which of the following expressions are polynomials? Justify your

answer:

$$rac{1}{7}a^3 - rac{2}{\sqrt{3}}a^2 + 4a - 7$$



Watch Video Solution

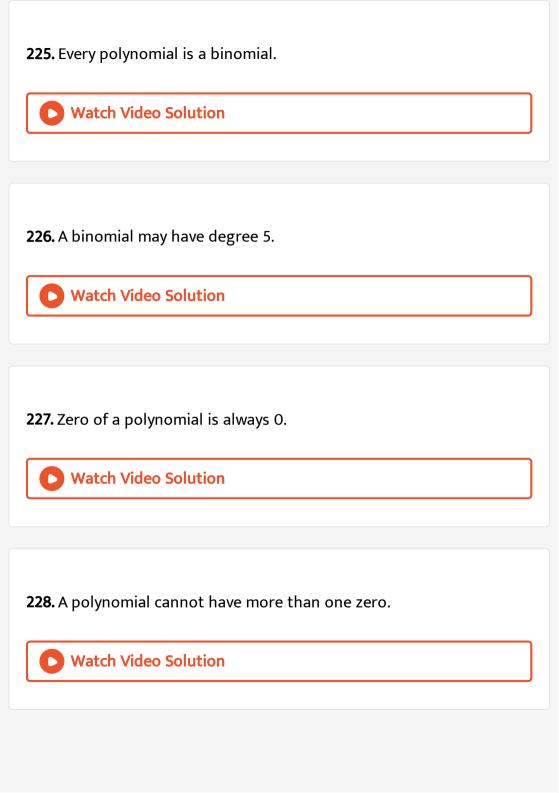
223. Which of the following expressions are polynomials? Justify your answer:

$$\frac{1}{2m}$$



224. A binomial can have atmost two terms.





229. The degree of the sum of two polynomials each of degree 5 is always 5.



230. Classify the following polynomials as polynomials in one variable, two variables, etc:

$$x^2-2tx-x+3$$



231. Classify the following polynomials as polynomials in one variable, two variables etc:

$$y^3-5y$$



232. Classify the following polynomials as polynomials in one variable, two variables, etc:

$$xy + 2yz + 3zx$$



233. Classify the following polynomials as polynomials in one variable, two variables, etc:

$$x^2-2tx-x+3$$



234. Determine the degree of each of the following polynomials

2x-1



235. Determine the degree of each of the following polynomials



-10?

236. Determine the degree of each of the following polynomials $x^3-9x+3x^5$

237. Determine the degree of each of the following polynomials $y^3ig(1-y^4ig)$



238. For the polynomial

$$\frac{x^3+2x+1}{5}-rac{7}{2}x^3-x^6$$
, write the degree of the polynomial?



Watch Video Solution

239. For the polynomial

$$rac{x^3 + 2x + 1}{5} - rac{7}{2}x^2 - x^6$$
, write

the coefficient of x^3 .



Watch Video Solution

240. For the polynomial

$$rac{x^3+2x+1}{5}-rac{7}{2}x^2-x^6$$
 , write

the coefficient of x^6



241. For the polynomial

$$rac{x^3+2x+1}{5}-rac{7}{2}x^2-x^6$$
 , write

the constant term.



Watch Video Solution

242. Write the coefficient of x^2 in each of the following

$$\frac{\pi}{6}x+x^2-1$$



243. Write the coefficient of x^2 in each of the following

3x - 5



244. Write the coefficient of x^2 in each of the following (x-1)(3x-4)



Watch Video Solution

245. Write the coefficient of x^2 in each of the following

$$(2x-5)(2x^2-3x+1)$$



246. Classify the following as a constant, linear, quadratic and cubic polynomials

$$2-x^2+x^3$$



247. Classify the following as a constant, linear, quadratic and cubic polynomials

 $3x^3$



248. Classify the following as a constant, linear, quadratic and cubic polynomials

 $5t-\sqrt{7}$



249. Classify the following as a constant, linear, quadratic and cubic polynomials

 $4 - 5u^2$



250. Classify the following as a constant, linear, quadratic and cubic polynomials

3



251. Classify the following as a constant, linear, quadratic and cubic polynomials

2+x



252. Classify the following as a constant, linear, quadratic and cubic polynomials

 y^3-y



253. Classify the following as a constant, linear, quadratic and cubic polynomials

$$1+x+x^2$$



254. Classify the following as a constant, linear, quadratic and cubic polynomials

 t^2



255. Classify the following as a constant, linear, quadratic and cubic polynomials

$$\sqrt{2x-1}$$



256. Give an example of a polynomial, which is: monomial of degree 1





257. Give an example of a polynomial, which is: binomial of degree 20



258. Give an example of a polynomial, which is:

trinomial of degree 2.



259. Find the value of the polynomial $3x^3-4x^2+7x-5$, when x=3 and also when x=-3.

260. If
$$p(x)=x^2-4x+3$$
 evaluate

$$p(2)-p(\,-1)+pigg(rac{1}{2}igg)$$



$$p(x) = 10x - 4x^2 - 3$$



262. Find p(0),p(1),p(-2) for the following polynomal

$$p(y)=(y+2)(y-2)$$



- 263. Verify whether the following are True/false
- -3 is a zero of x-3.



- 264. Verify whether the following are True/false
 - $-\frac{1}{3}$ is a zero of 3x+1



- 265. Verify whether the following are True/false
 - $-\frac{4}{5}$ is a zero of 4-5y



- 266. Verify whether the following are True/false
- 0 and 2 are the zeroes of t^2-2t



- **267.** Verify whether the following are True/false
- -3 is a zero of y^2+y-6



268. Find the zeroes of the polynomial in each of the following p(x)=x-4



269. Find the zeroes of the polynomial in each of the following g(x)=3-6x



q(x)=2x-7



Watch Video Solution

271. Find the zeroes of the polynomial in each of the following h(y)=2y

270. Find the zeroes of the polynomial in each of the following

Watch Video Solution

- 272. Find the zeroes of the polynomal
- $p(x)=(x-2)^2-(x+2)^2$
 - **Watch Video Solution**

273. By actual division, find the quotient and the remainder when the first polynomial is divided by the second polynomial:



274. By remainder Theoren, find the remainder, when p(x) is divided by g(x) where

$$p(x) = x^3 - 2x^2 - 4x - 1, g(x) = x + 1$$



275. By remainder Theoren, find the remainder, when p(x) is divided by g(x) where

$$p(x) = x^3 - 3x^2 + 4x + 50, g(x) = x - 3$$



276. By remainder Theoren, find the remainder, when p(x) is divided by

g(x) where

$$p(x) = 4x^3 - 12x^2 + 14x - 3, q(x) = 2x - 1$$



277. By remainder Theoren, find the remainder, when p(x) is divided by

g(x) where

$$p(x) = x^3 - 6x^2 + 2x - 4, g(x) = 1 - \frac{3}{2}x.$$



278. Check whether p(x) is a multiple of g(x) or not:

$$p(x) = x^3 - 5x^2 + 4x - 3, q(x) = x - 2$$



279. Check whether p(x) is a multiple of g(x) or not:

$$p(x) = 2x^3 - 11x^2 - 4x + 5'q(x) = 2x + 1$$



280. Show that:

x+3 is a factor of $69+11x-x^2+x^3$



281. Show that:

2x-3 is a factor of $x+2x^3-9x^2+12$



282. Determine which of the following polynomial has (x-2) as a factor:

283. Determine which of the following polynomial has (x-2) as a factor:

284. Show that p-1 is a factor of $p^{10}-1$ and also $p^{11}-1$

 $4x^2 + x - 2$



Watch Video Solution



Watch Video Solution

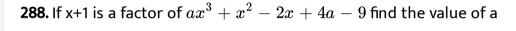
285. For what value of m is $x^3 - 2mx^2 + 16$ divisible by x+2?

Watch Video Solution

287. Find the value of m so that 2x-1 be a factor



 $8x^4 + 4x^3 - 16x^2 + 10x + m$





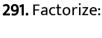
289. Factorize:

 $x^2 + 9x + 18$

290. Factorise:

 $6x^2 + 7x - 3$

Watch Video Solution

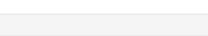


 $2x^2 - 7x + 5$

292. Factorize:

 $8 - 2r - 2r^2$









293. Factorize:

 $2x^3 - 3x^2 - 17x + 30$



$$x^3 - 6x^2 + 11x - 6$$



$x^3 + x^2 - 4x - 4$



295. Factorize the following expressions

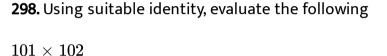
$3x^3 - x^2 - 3x + 1$

296. Factorize:



297. Using suitable identity, evaluate the following 103^3

Watch Video Solution



299. Using suitable identity, evaluate the following



Watch Video Solution

 999^{2}

 $4x^2 + 20x + 25$



 $9u^2 - 66uz + 121z^2$

Watch Video Solution

302. Factorize the following $\left(2x+rac{1}{3} ight)^2-\left(x-rac{1}{2} ight)^2$

303. Factorize the following

$$9x^2 - 12x + 3$$

304. Factorize the following

 $9x^2 - 12x + 4$



305. Expand the following
$$(4a-b+2c)^2$$



306. Expand the following

 $(3a - 5b - c)^2$



307. Factorize the following

 $(-x+2y-3z)^2$

308. Factorize the following

$$9x^2 + 4y^2 + 16z^2 + 12xy - 16yz - 24xz$$



309. Factorize the following

$$25x^3 + 16y^2 + 4z^2 - 40zy + 16yz - 20xz$$



310. Factorize the following

$$16x^2 + 4y^2 + 9z^2 - 16xy - 12yz + 24xz$$



311. If a+b+c=9 and ab+bc+ca=26, find the values of $a^2+b^2+c^2$

$$(3a-2b)^3$$

312. Expand the following



313. Expand the following

$$\left(rac{1}{x}+rac{y}{3}
ight)^3$$



314. Expand the following

 $\left(4-rac{1}{3x}
ight)^3$

315. Factorise the following

$$1 - 64a^3 - 12a + 48a^2$$



316. Factorise the following

$$8p^3 + \frac{12}{5}p\bigg[\ \hat{\ } \ 2 + \frac{6}{25}p + \frac{1}{125}$$



317. Factorise the following

$$1 + 64x^3$$



318. Factorise the following

$$a^3 - 2\sqrt{2}b^3$$



Watch Video Solution

319. Find the following products:

$$\left(rac{x}{2}+2y
ight)\!\left(rac{x^2}{4}-xy+4y^2
ight)$$



320. Find the following products:

$$(x^2-1)(x^4+x^2+1)$$



321. Find the product

$$(2x-y+3z)(4x^2+y^2+9z^2+2xy+3yz-6xz).$$



322. Factorise the following

$$a^3 - 8b^3 - 64c^3 - 24abc$$



323. Factorise the following

$$2\sqrt{2}a^3 + 8b^3 - 27c^3 + 18\sqrt{2}abc$$



324. Without actually calculating the cubes, find the value of:

$$\left(rac{1}{2}
ight)^3+\left(rac{1}{3}
ight)^3-\left(rac{5}{6}
ight)^3$$



325. Without actually calculating the cubes, find the value of:

$$\left(0.2\right)^3 - \left(0.3\right)^3 + \left(0.1\right)^3$$



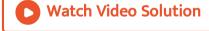
326. Without finding the cubes factorise

$$(x-2y)^3 + (2y-3z)^3 + (3z-x)^3$$



328. Find the value of:

$$x^3-8y^3-36xy-216$$
, when x=2y+6



329. Give possible expressions for the length and breadth of the rectangle whose area is given by $4a^2 + 4a - 3$



330. If the polynomials az^3+4z^2+3z-4 are z^3-4z+a leave the same remainder when divided by z-3, find the value of a.



331. The polynomial $p(x)=x^4-2x^3+3x^2+3a-7$ when divided by x+1 leaves the remainder 19. find the value of a. also find the remainder when p(x) is divided by x+2.



332. If both (x-2) and $\left(x-\frac{1}{2}\right)$ are factors of px^2+5x+r , prove that p=r.



333. Without actual division, prove that:

$$\left(2x^4-6x^3+3x^2+3x-2
ight)$$
 is exactly divisible by $\left(x^2-3x+2
ight)$



334. Simplify: $(2x+5)^2-(2x-5)^2$



Watch Video Solution

335. Multiply $x^2 + 4y^2 + z^2 + 2xy + xz - 2yz$ by (-z+x-2y).



Watch Video Solution

336. If a,b,c are all non-zero and a+b+c=0, prove that

$$\frac{a^2}{bc} + \frac{b^2}{ca} + \frac{c^2}{ab} = 3.$$



Watch Video Solution

337. If a+b+c=5 and ab+bc+ca=10, prove that

 $a^3 + b^3 + c^3 - 3abc = -25$



$$(a+b+c)^3-a^3-b^3-c^3=3(a+b)(b+c)(c+a)$$



Watch Video Solution

Exercise

1. Which of the following expressions are polynomial

$$x^2 - 5x + 7$$



Watch Video Solution

2. Which of the following expressions are polynomial

$$x^3 - 5x^2 + 9x + 11$$



- 3. Which of the following expressions are polynomial
- $23\sqrt{2}$
 - 0

Watch Video Solution

4. Which of the following expressions are polynomial

$$x+rac{5}{x}+2$$

0

Watch Video Solution

5. Which of the following expressions are polynomial

$$x^2 + 5 + x^4 + x^3$$

0

Watch Video Solution

6. Which of the following expressions are polynomial

7. Which of the following expressions are polynomial

$$\frac{5\pi}{6}$$



8. Which of the following expressions are polynomial

 $3x^2 + 8x$



9. Write the degree of each of the following polynomials

 $3x-\sqrt{7}$



10. Write the degree of each of the following polynomials

$$8x^2 + 5x + \sqrt{11}$$



Watch Video Solution

11. Write the degree of each of the following polynomials

12. Write the degree of each of the following polynomials

$$x^3 + 7x^2 + 9x + 13$$



 $x^4 + 2x^2 + 9$



Watch Video Solution

13. Write the degree of each of the following polynomials

7

14. Write the degree of each of the following polynomials

$$\pi$$
?



15. Write:

coefficient of x in $x^3 + 7x^2 + 9x + 11$.



16. Write:

coefficient of x^2 in $x^4 + 7x^3 + 9x^2 + 11$



17. Write:

coefficient of x^{3} in $x^{4} + 5x^{3} + 7x^{2} + 9x + 11$



Watch Video Solution

18. Write:

coefficient of x^4 in $7x^2 + 9x + 11x^4 + 13$



Watch Video Solution

19. Classify the following polynomials as linear, quadratic, cubic and biquadratic polynomials

3x-5?



20. Classify the following polynomials as linear, quadratic, cubic and biquadratic polynomials

$$x^2 + 3x + 7$$



21. Classify the following polynomials as linear quadratic, cubic and biquadratic polynomials

 $3x + 5x^3$



22. Classify the following polynomials as linear quadratic, cubic and biquadratic polynomials

5z



23. Classify the following polynomials as linear quadratic, cubic and biquadratic polynomials





24. Classify the following polynomials as linear quadratic, cubic and biquadratic polynomials

$$7x^4 + 5x^3 + 7x^2 - 2$$



25. Which of the following expressions are polynomial in one variable and which are not? Give reasons your answer

$$3x^2 - 4x + 9$$



26. Which of the following expressions are polynomial in one variable and which are not? Give reasons your answer

$$y^2+\sqrt{3}$$



27. Which of the following expressions are polynomial in one variable and which are not? Give reasons your answer

$$3\sqrt{t} + t\sqrt{5}$$



28. Which of the following expressions are polynomials in one variable and which are not? State reasons for your answer:- $y + \frac{2}{y}$



29. Which of the following expressions are polynomials in one variable and which are not? State reasons for your answer:- $x^{10}+y^3+t^{50}$



30. Give an example of a monomial of degree 11



31. Give an example of a

binomial of degree 23.

Watch Video Solution

32. Give an example of a trinomial of degree 7

33. If
$$p(x) = 4 + 3x - x^2 + 5x^3$$
, find p(0)?

34. If $p(x) = 4 + 3x - x^2 + 5x^3$, find

35. If $p(x) = 4 + 3x - x^2 + 5x^3$, find



p(2)?

p(-1)?





36. If $p(x)=5-4x+2x^2$, find p(2)?



37. If $p(x)=5-4x+2x^2$, find

p(-2)?

p(4)?

38. If $p(x)=5-4x+2x^2$, find



39. Find the zeroes of the polynomial: p(x)=x-4



40. Find the zeroes of the polynomial:

41. Find the zeroes of the polynomial:

$$q(x) = x + 7$$



r(x)=3x-4



42. Find the zeroes of the polynomial:

Watch Video Solution

s(x)=5-4x

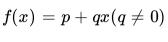
t(x)=px, $p \neq 0$



Watch Video Solution

44. Find the zeroes of the polynomial:

43. Find the zeroes of the polynomial:





-5 is a zero of the polynomial p(x)=x+5?

- Watch Video Solution
- **46.** Verify that:

45. Verify that:

 $-\frac{1}{2}$ is a zero of the polynomial q(x)=2x+3

$$\frac{2}{7}$$
 is a zero of the polynoial q(x)=2-7x



47. Verify that

48. Verify that:

49. Verify that:

 $q(x) = x^2 - 4x$

p(x)=(x-2)(x-3)

2 and 3 are zeroes of the polynomial:





0 and 4 are zeroes of the polynomial:

50. If $x=-rac{1}{2}$ is a zero of the polynomial $p(x)=8x^3-kx^2-x+2$, find the value of k.



51. If $x=rac{4}{3}$ is a zero of the polynomial $p(x)=6x^3-11x^2+kx-20$ find the value of k.



52. If x=0 and x=-1 are the zeroes of the polynomial $p(x)=2x^3-3x^2+ax+b$, find the value of a and b.



53. Using Remainder Theoren, find the remainder from

$$x^3-6x^2+9x+3$$
 is divided by x-1



54. Using Remainder Theoren, find the remainder from

55. Using Remainder Theoren, find the remainder from

 $x^3 - ax^2 + 2x - a$ is divided by x-a.

 $4x^4-3x^3-2x^2+x-7$ is divided by x-1.



56. Using Remainder Theoren, find the remainder from $x^3+4x^2-3x+10$ is divided by x+4.

57. Using Remainder Theoren, find the remainder from

$$2x^4+6x^3+2x^2+x-8$$
 is divided by x+3.



58. Using Remainder Theoren, find the remainder from

 $x^3 - 6x^2 + 2x - 4$ is divided by 3x-1.

59. Using Remainder Theoren, find the remainder from

 $81x^4 + 54x^3 - 9x^2 - 3x + 2$ is divided by 3x+2.



60. The polynomial $\left(ax^3+3x^2-3\right)$ and $\left(2x^3-5x+a\right)$ when divided by (x-4) leave the same remainder. Find the value of a.



61. The polynomials $\left(ax^3+4x^2+3x-4\right)$ and $\left(x^3-4x+a\right)$ when divided by (x-3) leave the same remainder. Find the value of a.



62. The polynomials $\left(ax^3+3x^2-13\right)$ and $\left(2x^3-5x+a\right)$ when divided by (x+2) leave the same remainder. Find the value of a.



63. The polynomials $f(x)=x^4-2x^3+3x^2-ax+b$ when divided by (x-1) and (x+1) leaves remainder 5 and 19 respectively. Find the value

of a and b hence, find the remainder when f(x) is divided by (x-2)



64. The polynomal $f(x)=ax^3+3x^2-3$ and $g(x)=2x^3-5x+a$ when divided by (x-4) leave remainders R_1 and R_2 respectively. Find the value of a when:

$$R_1 = R_2$$

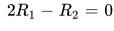


65. The polynomal $f(x)=ax^3+3x^2-3$ and $g(x)=2x^3-5x+a$ when divided by (x-4) leave remainders R_1 and R_2 respectively. Find the value of a when:

$$R_1 + R_2 = 0$$



66. The polynomal $f(x)=ax^3+3x^2-3$ and $g(x)=2x^3-5x+a$ when divided by (x-4) leave remainders R_1 and R_2 respectively. Find the value of a when:





67. Prove that: $(x\text{-}3) \text{ is a factor of } x^3+x^2-17x+15.$

68. Prove that:

(x-1) is a factor of $2x^4 + 9x^3 + 6x^2 - 11x - 6$



69. Prove that:

(x+5) is a factor of
$$x^3+x^2+3x+115$$



70. Prove that:

71. Prove that:

(x+3) is a factor of
$$x^5+3x^4-x^3-3x^2$$



(3x-2) is a factor of $3x^3+x^2-20x+12$



72. Prove that:

(x-1) is a factor of $2x^4+9x^3+6x^2-11x-6$

73. Prove that:

$$\left(x-\sqrt{2}
ight)$$
 is a factor of $\left(7x^2-4\sqrt{2}x-6
ight)$



74. Prove that:

$$\left(x+\sqrt{2}
ight)$$
 is a factor of $\left(2\sqrt{2}x^2+5x+\sqrt{2}
ight)$



75. Prove that:

(x+1) and (2x-3) are factors of $2x^3-9x^2+x+12$



76. Find the integral zeroes of the polynomial:

$$p(x) = x^3 + 6x^2 + 11x + 6$$



77. Find the value of k if:

(x-k) is a factor of
$$x^3-k^2x+x+2$$



78. Find the value of k if



(x+3) is a factor of $3x^3 + kx + 6$

79. Prove that $\left(x^3-3x^2-13x+15
ight)$ is exactly divisible by x^2+2x-3



80. Prove that (x-1) is a factor of $x^{10}-1$ and $x^{11}-1$



81. Find the value of a and b so that the polynomial $x^3-ax^2-13x+b$ has (x-1) and (x+3)as factor.



82. If ax^3+bx^2+x-6 has (x+2) as a factor and a remainder 4 when divided by (x-2), find the vallues of a and b.



83. If $\left(x^2-1\right)$ is a factor of $ax^4+bx^3+cx^2+dx+e$ if that a+c+e=b+d=0



84. If both (x+1) and (x-1) are factors of ax^3-2x+b , find the values of a and b.



85. find lpha and eta if (x+1) and (x+2) are factors $x^3+3x^2-2lpha x+eta$



86. What must be added to $3x^3+x^2-22x+9$ so the result is exactly divisible by $3x^2+7x-12$.

watch video Solution

87. What must be substracted from $x^3-6x^2-15x+2$ is so that the result is exactly divisible by x^2+x+2



88. Factorize the following expressions

 $18x^2y - 24xyz$



$$4(x+y) - 6(x+y)^2$$



$$8(3a-2b)^2-10(3a-2b)$$



91. Factorize the following expressions

ax - 5b + ab - 5x



 $x^3 - x^2 + ax + x - a - 1$

93. Factorize the following expressions

$$p^2 + pq(q+1) + q^3$$

$$a(a-2b-c)+2bc$$



95. Factorize the following expressions



 $x^2-(a+b)x+ab$

$$x^2 + rac{1}{x^2} - 2 - 3x + rac{3}{x}$$



97. Factorize the following expressions $4a^2 + 12ab + 9b^2 - 8a - 12b$

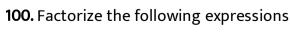


98. Factorize the following expressions $a(a+b)^3-3a^2b(a+b)$



99. Factorize the following expressions

 $a^2x^2 + (ax^2 + 1) + a$





102. Factorize the following expressions

103. Factorize the following expressions



$$\left(p+q
ight)^3-p-q$$

 $20x^2 - 45$



 $x^2 - y^2 + 6y - 9$



$$x^4 - 625$$



105. Factorize the following expressions

$$x^2 + 3\sqrt{3}x + 6$$



106. Factorize the following expressions

 $4\sqrt{3}x^2 + 5x - 2\sqrt{3}$



107. Factorize the following expressions

 $7\sqrt{2}x^2 - 10x - 4\sqrt{2}$

$$9(x-2y)^2-4(x-2y)-13$$



109. Factorize the following expressions

$$x^3 - 6x^2 + 11x - 6$$



$$x^3 + x^2 - 4x - 4$$



$$\left(2a+3b\right)^2+2(2a+3b)(2a-3b)+\left(2a-3b\right)^2$$



112. Factorize the following expressions

$$(x^2-4x)(x^2-4x-1)-20$$



113. Factorize the following expressions

$$(a-b+c)^2+(b-c+a)^2+2(a-b+c)(b-c+a)$$



$$7(x-2y)^2-25(x-2y)-12$$

115. Give possible expressions for the length and breadth of the rectangle having $35x^2+13x-12$ as its area.



116. What are the possible expressions for its dimensions of the cuboid whose volume $3y^2-12y$?



$$(x+2y+5z)^2$$

117. Expand:



 $(x-2y-3z)^2$

119. Expand:

$$(2x - 5y - 7z)^2$$



120. Expand:

$$\left(\frac{1}{2}a-\frac{1}{4}b+2\right)^2$$



122. Factorise :
$$2x^2 + y^2 + 8z^2 - 2\sqrt{2}xy + 4\sqrt{2}yz - 8xz$$
.



123. Factorize:

$$25x^2 + 4y^2 + 9z^2 - 20xy - 12yz + 30xz$$



124. Evaluate

 $(92)^2$



125. Evaluate $(997)^2$

Watch Video Solution

- **126.** Expand:
 - $(3a+2)^3$
 - Watch Video Solution

127. Expand:

 $(4x + 5y)^3$



$$\left(rac{2}{3}a+1
ight)^3$$



Watch Video Solution

129. Expand:

$$(5x-3y)^3$$



Watch Video Solution

130. Expand:

$$\left(2x-rac{2}{x}
ight)^3$$



$$\left(rac{4}{5}x-2
ight)^3$$



132. Evaluate

 $(106)^3$

Watch Video Solution

133. Evaluate:

 $(999)^3$



$$x^3 + 64$$

 $8x^3 + 125y^3$



135. Factorize the following expressions

136. Factorize the following expressions

- **Watch Video Solution**

 $1 + 27x^3$

- **Watch Video Solution**
- 137. Factorize the following expressions $125x^3 + rac{1}{8}$



$$rac{1}{64} + 216x^3$$

 $x^3 + 0.008$



139. Factorize the following expressions

140. Factorize the following expressions



 $16a^4 + 54a$



141. Factorize the following expressions $x^5 + x^2$

 $7x^3 + 56y^3$

 $a^6 + b^6$



142. Factorize the following expressions



143. Factorize the following expressions

- **144.** Factorize the following expressions
- $2x^3 + 16y^3 5x 10y$



145. Factorize the following expressions x^3-64y^3

146. Factorize the following expressions

147. Factorize the following expressions



 $1 - 27a^3$

 $64a^3 - 343$

Watch Video Solution

$$8x^3 - rac{1}{27b^3}$$



149. Factorize the following expressions $x^3 - 0.064$



150. Factorize the following expressions



 $x - 8xy^3$

- 151. Factorize the following expressions
- $32x^4 500x$



$$3a^7b - 81a^4b^4$$



153. Factorize the following expressions



154. Factorize the following expressions

 $x^6 - 729$

 $x^6 - y^6$



155. Factorize the following expressions

$$x^3 - \frac{1}{x^3} - 2x + \frac{2}{x}$$



156. Factorize the following expressions

 $x^3 + 3x^2y + 3xy^2 + y^3 - 8$



 $x^6 - 7x^3 - 8$



158. Factorize the following expressions

157. Factorize the following expressions

$$x^3 + 8y^3 + 64z^3 - 24xyz$$



159. Factorize the following expressions

160. Factorize the following expressions



 $1 + y^3 + 8z^3 - 6yz$

$125 - 8x^3 - 27y^3 - 90xy$



161. Factorize the following expressions $2\sqrt{2}a^3 + 16\sqrt{2}b^3 + c^3 - 12abc$



162. Find the following expressions

$$(4x-3y+2z)ig(16x^2+9y^2+4z^2+12xy+6yz-8zxig)$$



163. Find the following expressions

$$(3x+2y+2z) \left(9x^2+4y^2-6xy-4yz-6zx
ight)$$



164. Find the following expressions

$(x-2y+3)(x^2+4y^2+2xy-3x-6y+9)$



165. Find the following expressions

166. Evaluate:

$$48^3 - 30^3 - 18^3$$



167. Without actually calculating the cubes, find the value of:

$$\left(\frac{1}{2}\right)^3 + \left(\frac{1}{3}\right)^3 - \left(\frac{5}{6}\right)^3$$



168. Evaluate

$$\left(0.2\right)^3 - \left(0.3\right)^3 + \left(0.1\right)^3$$



169. Factorize:

 $(3a-2b)^3+(2b-5c)^3+(5c-3a)^3$

Watch Video Solution

170. Factorize:

 $a^{3}(b-c)^{3}+b^{3}(c-a)^{3}+c^{3}(a-b)^{3}$

171. If x+y+4=0, find the value of $x^3 + y^3 - 12xy + 64$



Watch Video Solution

Watch Video Solution

172. If a+b+c=9 and ab+bc+ca=26, find the value of: $a^3 + b^3 + c^3 - 3abc$



173. If
$$x+rac{1}{x}=3$$
 then find the value of $x^2+rac{1}{x^2}$



Watch Video Solution

174. If x-y=5 and xy=12, find the value of x^2+y^2



Watch Video Solution

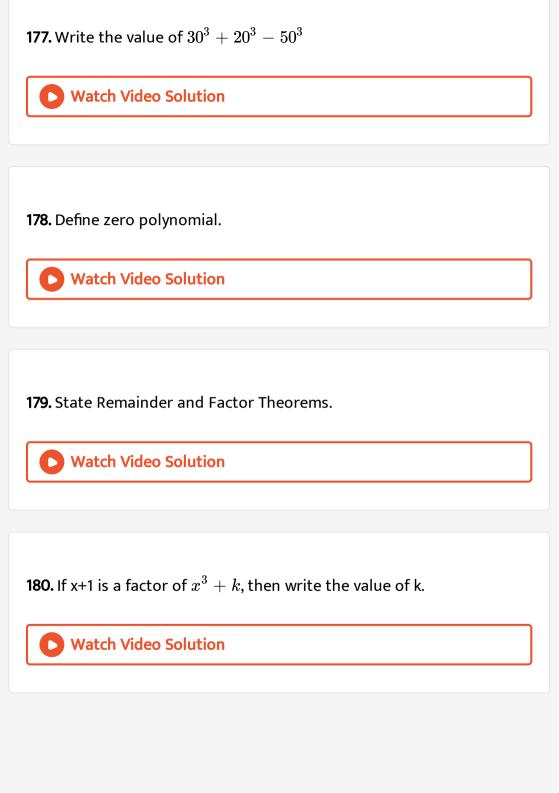
175. If a+b+c=0, then what is the value of $\frac{a^2}{bc} + \frac{b^2}{ca} + \frac{c^2}{ab}$



Watch Video Solution

176. If $a^2 + b^2 + c^2 = 250$ and ab+bc+ca=3, find a+b+c.





181. If $x=rac{1}{2}$ is a zero of the polynomial $f(x)=8x^3+ax^2-4x+2$,

find the value of a.



182. Find the remainder when x^3+4x^2+4x-5 is divided by x=0.



183. State that $y^3+5y+\sqrt{y}$ is a polynomial or not.



184. A binomial can have degree more than 2.



185. Number of zeroes of a polynomial cannot exceed its degree.



186. $(30)^3 - (18)^3 - (12)^3 = 19450.$



187. Polynomial of different degrees cannot be added.



188. Factorize the given expression

$$a - b - a^3 + b^3$$



189. The value of the polynomial $4x-7x^2+5x^3+4$ at x=-1 is 10



190. Zeroes of $x^2 - 5x$ are 0 and -5.



191. $\sqrt{2}$ is a polynomial of degree 0.



192. If 'a' is a zero of the polynomial p(x), then p(a)=1.



193. $(a+b)^2 + (a-b)^2$ =.....



194. Factors of x^2-3x+2 are.....



195. $27x^3 + 8y^3 = (3x + 2y).....$



196. The value of $(249)^2 - (248)^2$ is......



197. $\sqrt{3}$ is a polynomal of degree



198. $(30)^3 - (18)^3 - (12)^3 = 19450.$



199.
$$\frac{\left(0.137\right)^3 + \left(0.113\right)^3}{\left(0.137\right)^2 - \left(0.137\right)\left(0.113\right) + \left(0.113\right)^2} =$$



200. $(0.9x+0.7y)(0.81x^2-0.63xy+0.49^2)$ =.....



201. $(185)^2 - (115)^2 = \dots$



Watch Video Solution

202. Volume of a cuboic is $7x^2 - 56x + 105$ cubic units then the possible dimensions of the cuboid areand....and....given that x>5.



Watch Video Solution

203. Which of the following is a polynomial?

A. $3\sqrt{y} + 4$

B.y

C. $\sqrt{y}-3$

Answer:



Watch Video Solution

204. Which of the following is a linear polynomial?

A.
$$x + x^2$$

B.
$$5x^2 - x + 3$$

$$c. x + 1$$

$$\mathsf{D}.\,x+\frac{1}{x}$$

Answer:



Watch Video Solution

205. Degree of zero polynomial is

A. 0

B. 1

C. Not defined

D. None of these

Answer:



Watch Video Solution

206. The factors of $x^{3} - 1 + y^{3} + 3xy$ are

A.
$$(x-1+y)(x^2+1+y^2+x+y-xy)$$

B.
$$(x-1+y)(x^2-1-y^2+x+y+xy)$$

C.
$$(x + y - 1)(x^2 + y^2 + 1 - xy - x - y)$$

D.
$$3(x+y-1)(x^2+y^2-1)$$

Answer:



207. The factors of x^3-7x+6 are

A.
$$x(x-6)(x-1)$$

B.
$$(x+1)(x+2)(x+3)$$

C.
$$(x^2 - 6)(x - 1)$$

D.
$$(x-1)(x+3)(x-2)$$

Answer:



Watch Video Solution

208. If 3x=a+b+c, then the value of

$${(x-a)}^3+{(x-b)}^3+{(x-c)}^3-3{(x-a)}{(x-b)}{(x-c)}$$
 is

C. (a-b)(b-c)(c-a)

D. None of these

Answer:



Watch Video Solution

- **209.** The value of $\dfrac{\left(2.3\right)^3-\left(0.027\right)}{\left(2.3\right)^2+0.69+0.09}$ is
 - A. 2
 - B. 2.327
 - C. 3
 - D. 2.273

Answer:



210. If
$$p(x)=x+4$$
, then $p(x)+p(-x)$

A. 0

B. 2x

C. 4

D. 8

Answer:

Watch Video Solution

211. If $(x^2 + kx - 3) = (x - 3)(x + 1)$ then k=

A. 2

B. 3

C. -2

D. -1

Answer:



Watch Video Solution

212. When $\left(x^{31}+31 ight)$ is divided by (x+1), the remainder is

A. 0

B. 1

C. 30

D. 31

Answer:



Watch Video Solution

213. Find the remainder when the polynomial:

 $f(x) = 4x^3 - 12x^2 + 11x - 5$ is divided by (2x-1)

A. 0 B. -5 C. -2 D. 2 **Answer:** Watch Video Solution **214.** If x-2 is a factor of $x^2 + 3ax - 2a$, then a= A. 2 B. -2 C. -1 D. 1 **Answer:**

215. If
$$x^3+6x^2+4x+k$$
 is exactly divisible by x+2 then k=

216. If $x^{140}+2x^{151}+k$ is divisible by x+1, then the value of k is

- A. -6
- B. -8
- C. -7

D. -10

Answer:



- **A.** 1
 - B. 2

C. -3

D. -2

Answer:



Watch Video Solution

217. Let f(x) be a polynomial such that $f\!\left(-rac{1}{2}
ight)=0$

A. 2x-1

B. x-1

C. 2x+1

D. x+1

Answer:



218. One factor of $x^4 + x^2 - 20$ is $x^2 + 5$ the other factor is:

A.
$$x^2-4$$

B.
$$x^2-5$$

Answer:



Watch Video Solution

219. If (x-1) is a factor of polynomial f(x) but not of g(x), then it must be a factor of

$$\mathsf{C}.-f(x)+g(x)$$

D.
$$[f(x)+g(x)]g(x)$$

Answer:



Watch Video Solution

220. (x+1) is a factor of the polynomial

a.
$$x^3-2x^2+x+2$$

$$\mathsf{b.}\,x^3+2x^2-x-2$$

c.
$$x^3 + 2x^2 + x - 2$$

$$\mathsf{d.}\, x^3 + 2x^2 - x + 2$$

A.
$$x^{23}-2x^2+x+2$$

C.
$$x^3 + 2x^2 + X - 2$$

D.
$$x^3+2x^2-x+2$$

Answer:

221.
$$6x^2 + 17x + 5$$
=

A.
$$(2x+1)(3x+5)$$

B.
$$(6x+5)(x+1)$$

C.
$$(2x+5)(3x+1)$$

D. none of these

Answer:



Watch Video Solution

222. If (x+5) is a factor of $p(x)=x^3-20x+5k$, then k=

B. 3

C. 5

D. -3

Answer:



Watch Video Solution

223. If $\dfrac{x}{y}+\dfrac{y}{x}=-1$ where x
eq 0 and y
eq 0 then the value of $\left(x^3-y^3\right)$ is

A. 1

В. О

C. -1

 $\mathsf{D.}\,\frac{1}{2}$

Answer:



224. The value of $(369)^2 - (368)^2 = ?$

B. 37

C. 81

D. 737

Answer:



225. The coefficient of x in the expansion of $\left(x+3\right)^3$ is

A. 1

B. 18

C. 9

D. 27

Answer:



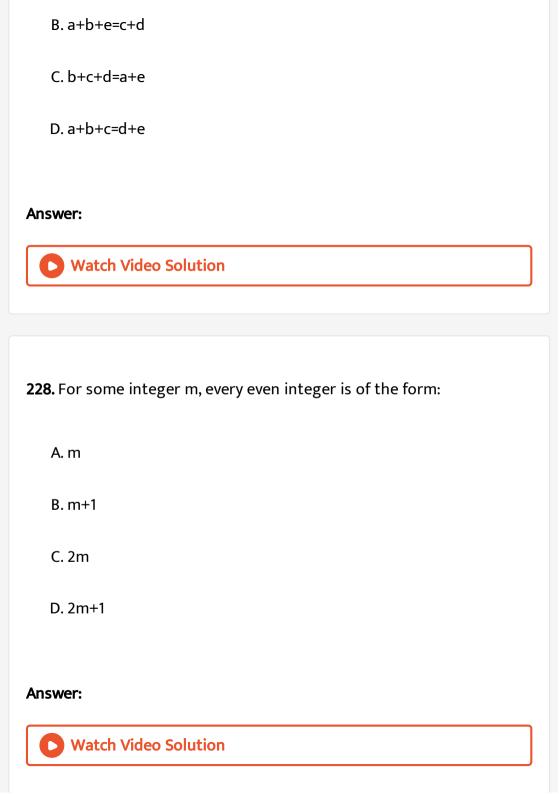
Watch Video Solution

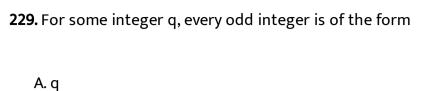
- **226.** If x+1 is a factor of the polynomial $2x^2+kx$, then k=
 - A. -2
 - B. 4
 - C. -3
 - D. 2

Answer:



- **227.** If x^2-1 is a factor of $ax^4+bx^3+cx^2+dx+e$, then
 - A. a+c+e=b+d





۸. ۷

B. q+1

C. 2q

D. 2q+1

Answer:



Watch Video Solution

230. n^2-1 is divisible by 8, if n is

A. 1) an integer

B. 2) a natural number

C. 3) an odd number

Answer:
Watch Video Solution
231. If the HCF of 65 and 117 is expressible in the form 65m-117, then the value of m is
A. 4
B. 2
C. 1
D. 3
Answer:

D. 4) an even integer

232. The largest number which divides 70 and 125, leaving remainders 5 and 8 respectively, then HCF(a,b) is

- A. 13
- B. 65
- C. 875
- D. 1750

Answer:

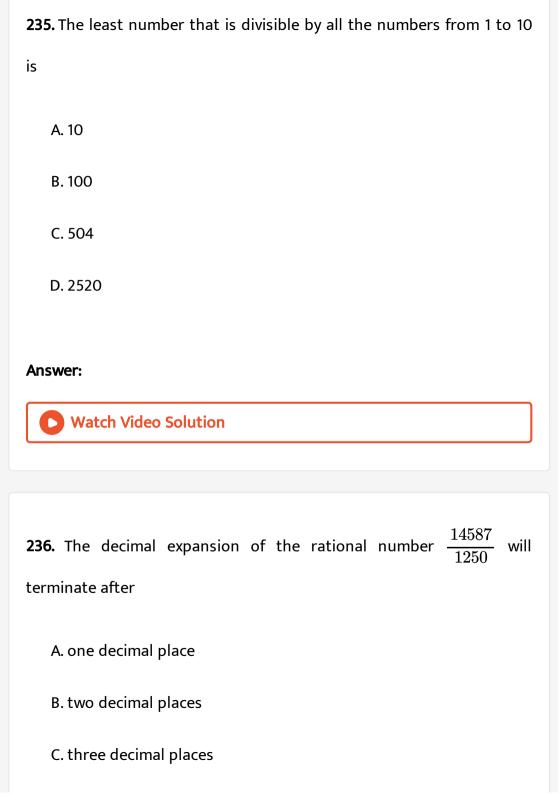


Watch Video Solution

233. If two positive integers p and q can be expression as $p=ab^2$ and $q=a^3$,a,b being prime numbers than LCM(p,q) is

- A. ab
- B. a^2b^2

$C.a^3b^2$
D. a^3b^2
Answer:
Watch Video Solution
234. The product of a non-zero rational and irrational number is
A. always irrational
B. always rational
C. rational or irrational
D. one
Answer:
Watch Video Solution



D. four decimal places

Answer:



237. Find the zeroes of the polynomial x^2-5x



238. Evaluate: $(a-b)^3 + (b-c)^3 + (c-a)^3$



239. Using Remainder theorem, find the remainder when

 $4x^3-12x^2+11x-5$ is divided by (2x-1)



240. Using factor theorem, prove that x-y is a factor of
$$x(y^2-z^2)+y(z^2-x^2)+z(x^2-y^2)$$



- **241.** Show that p-1 is a factor of $p^{10}-1$ and also $p^{11}-1$
 - Watch Video Solution

- **242.** If x+2a is a factor of $x^5-4a^2x^3+2x+2a+3$ find a.
 - Watch Video Solution

243. Without actually calculating the cubes, find the value of:

$$\left(\frac{1}{2}\right)^3 + \left(\frac{1}{3}\right)^3 - \left(\frac{5}{6}\right)^3$$

- Watch video Solution

244. If both x-2 and
$$x-rac{1}{2}$$
 are factors of px^2+5x+r , show that p=r.



245. Find the integral zeroes of the polynomial:

$$p(x) = x^3 + 6x^2 + 11x + 6$$



246. If
$$x^2 + rac{1}{x^2} = 79$$
, evaluate $x^3 + rac{1}{x^3}$



