EduSahara™ Learning Center Assignment

Grade : Class X, SSC
Chapter : Polynomials
Name : Zeroes of a Cubic Polynomial

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1. If α, β, γ are the roots of the cubic equation $(36x^3 - 144x^2 + 155x - 50) = 0$, find α + β + γ

   (i) 4 (ii) $(-\frac{25}{18})$ (iii) $(-\frac{155}{36})$ (iv) $\frac{155}{36}$ (v) (-4)

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2. If α, β, γ are the roots of the cubic equation $(252x^3 - 751x^2 + 689x - 180) = 0$, find αβ + βγ + γα

   (i) $\frac{751}{252}$ (ii) $(-\frac{5}{7})$ (iii) $\frac{689}{252}$ (iv) $\frac{5}{7}$ (v) $(-\frac{751}{252})$

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3. If α, β, γ are the roots of the cubic equation $(90x^3 - 243x^2 + 170x - 25) = 0$, find αβγ

   (i) $(-\frac{17}{9})$ (ii) $\frac{5}{18}$ (iii) $(-\frac{27}{10})$ (iv) $\frac{17}{9}$ (v) $(-\frac{5}{18})$

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4. If one of the roots of the cubic equation $(75x^3 - 235x^2 + 149x - 21) = 0$ is $\frac{7}{3}$, find the remaining real roots

   (i) $(3 , \frac{1}{3})$ (ii) $(\frac{5}{3} , (-\frac{1}{5}))$ (iii) $(\frac{1}{5} , \frac{3}{5})$ (iv) $(3 , \frac{3}{5})$ (v) $(\frac{11}{5} , \frac{1}{7})$

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5. If one of the roots of the cubic equation $(x^3 + 12x^2 + 29x - 42) = 0$ is (-7) , find the remaining real roots

   (i) $((-4) , 3)$ (ii) $((-8) , 0)$ (iii) $(1 , (-6))$ (iv) $((-10) , (-2))$ (v) $((-6) , 2)$

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6. If $\alpha = \frac{2}{7}$, $\beta = \frac{1}{7}$, $\gamma = \frac{9}{7}$ are the roots of the cubic equation $ax^3 + bx^2 + cx + d = 0$, then find $\frac{b}{a}$

   (i) $\frac{12}{7}$ (ii) $(-\frac{29}{49})$ (iii) $(-\frac{12}{7})$ (iv) $(-\frac{18}{343})$ (v) $\frac{29}{49}$

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7. If $\alpha = \frac{6}{5}$, $\beta = \frac{6}{7}$, $\gamma = \frac{8}{7}$ are the roots of the cubic equation $ax^3 + bx^2 + cx + d = 0$, then find $\frac{c}{a}$

   (i) $(-\frac{288}{245})$ (ii) $(-\frac{828}{245})$ (iii) $\frac{828}{245}$ (iv) $\frac{16}{5}$ (v) $(-\frac{16}{5})$

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8. If $\alpha = \frac{7}{5}$, $\beta = \frac{2}{7}$, $\gamma = \frac{3}{8}$ are the roots of the cubic equation $ax^3 + bx^2 + cx + d = 0$, then find $\frac{d}{a}$

   (i) $(-\frac{3}{20})$ (ii) $\frac{577}{280}$ (iii) $(-\frac{289}{280})$ (iv) $\frac{3}{20}$ (v) $\frac{289}{280}$

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9. If $(x - a)$ is a factor of $x^3 - ax^2 - 2x - 6$, find the value of a

(i) (-6) (ii) (-4) (iii) (-3) (iv) (-2) (v) (-1)

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10. If α, β, γ are the roots of the cubic equation $(90x^3 - 477x^2 + 812x - 441) = 0$, find α + β + γ

(i) $(-\frac{49}{10})$ (ii) $(-\frac{53}{10})$ (iii) $\frac{53}{10}$ (iv) $\frac{406}{45}$ (v) $\frac{49}{10}$

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11. If α, β, γ are the roots of the cubic equation $(320x^3 - 672x^2 + 423x - 81) = 0$, find αβ + βγ + γα

(i) $\frac{81}{320}$ (ii) $\frac{21}{10}$ (iii) $\frac{423}{320}$ (iv) $(-\frac{81}{320})$ (v) $(-\frac{21}{10})$

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12. If α, β, γ are the roots of the cubic equation $(576x^3 - 1024x^2 + 511x - 49) = 0$, find αβγ

(i) $(-\frac{49}{576})$ (ii) $\frac{511}{576}$ (iii) $(-\frac{16}{9})$ (iv) $(-\frac{511}{576})$ (v) $\frac{49}{576}$

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13. If one of the roots of the cubic equation $(192x^3 - 296x^2 + 98x - 9) = 0$ is $\frac{9}{8}$, find the remaining real roots

(i) $(\frac{11}{10} , \frac{1}{8})$ (ii) $(\frac{11}{8} , \frac{1}{2})$ (iii) $(\frac{7}{8} , (-\frac{1}{6}))$ (iv) $(\frac{1}{6} , \frac{1}{4})$ (v) $(\frac{7}{6} , \frac{1}{4})$

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14. If one of the roots of the cubic equation $(x^3 + 13x^2 + 40x) = 0$ is (-5), find the remaining real roots

(i) $((-3) , (-6))$ (ii) $((-8) , 0)$ (iii) $((-6) , (-9))$ (iv) $((-4) , (-7))$ (v) $((-8) , (-10))$

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15. If α = $\frac{2}{5}$, β = $\frac{5}{6}$, γ = $\frac{7}{5}$ are the roots of the cubic equation $ax^3 + bx^2 + cx + d = 0$, then find $\frac{b}{a}$

(i) $\frac{79}{30}$ (ii) $(-\frac{103}{50})$ (iii) $(-\frac{79}{30})$ (iv) $\frac{7}{15}$ (v) $(-\frac{7}{15})$

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16. If α = $\frac{4}{9}$, β = $\frac{7}{5}$, γ = $\frac{5}{9}$ are the roots of the cubic equation $ax^3 + bx^2 + cx + d = 0$, then find $\frac{c}{a}$

(i) $(-\frac{12}{5})$ (ii) $(-\frac{667}{405})$ (iii) $(-\frac{28}{81})$ (iv) $\frac{667}{405}$ (v) $\frac{12}{5}$

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17. If α = $\frac{1}{7}$, β = $\frac{6}{7}$, γ = $\frac{4}{9}$ are the roots of the cubic equation $ax^3 + bx^2 + cx + d = 0$, then find $\frac{d}{a}$

(i) $(-\frac{8}{147})$ (ii) $\frac{250}{441}$ (iii) $\frac{8}{147}$ (iv) $(-\frac{13}{9})$ (v) $(-\frac{250}{441})$

Assignment Key

1) (i)
2) (iii)
3) (ii)
4) (iii)
5) (iii)
6) (iii)
7) (iii)
8) (i)
9) (iii)
10) (iii)
11) (iii)
12) (v)
13) (iv)
14) (ii)
15) (iii)
16) (iv)
17) (i)