

EduSahara™ Learning Center Assignment**Grade : Class IX, SSC****Chapter : Polynomials and Factorisation****Name : Zeros of a Polynomial**

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- Find the value of k such that $4x^4 + 8x^3 - 45x^2 + kx + 135$
1. is exactly divisible by $(2x - 3)$

(i) -57 (ii) -55 (iii) -52 (iv) -54 (v) -53

- If 2 and -3 are the zeros of the polynomial
2. $f(x) = 2x^4 + ax^3 - 34x^2 - 36x + b$, find the value of a and b

(i) 5, 144

(ii) 4, 145

(iii) 4, 144

(iv) 143, 3

(v) 145, 5

- Find the value of a and b such that
3. $2x^4 + bx^3 + ax^2 + 5x + 25$ is exactly divisible by $(x^2 - 4x - 5)$

(i) -26, -5

(ii) -27, -5

(iii) -27, -4

(iv) -6, -28

(v) -4, -26

4. If -2 is the zero of the polynomial $f(x) = kx^2 + 4x - 4$, find k
- (i) 6 (ii) 4 (iii) 2 (iv) 3 (v) 1
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- If the polynomial $f(x) = 3x^2 - 22x + k$
5. is exactly divisible by $(x - 6)$, find k

(i) 23 (ii) 26 (iii) 21 (iv) 25 (v) 24

6. If the polynomials $ax^2 - x + 35$ and $-2x^2 + ax + 26$

leave the same remainder when divided by $(x - 3)$, find the value of a

- (i) (-4) (ii) (-3) (iii) (-2) (iv) (-5) (v) (-6)
-

7. Which of the following are true?

- a) A linear polynomial in one variable has only one root
- b) A polynomial of degree n has at most n zeros
- c) If $(x + a)$ is a factor of $f(x)$, then $f(a) = 0$
- d) Zero of a polynomial and zero polynomial are synonymous
- e) If $(x - a)$ is a factor of $f(x)$, then $f(a) = 0$
- f) Zero of a polynomial is the value of the variable for which the polynomial value is zero
- g) Zero of a polynomial and root of the polynomial are synonymous

- (i) {c,d,e} (ii) {c,f,g} (iii) {d,b} (iv) {c,a} (v) {a,b,e,f,g}
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8. If $(x^2 - 1)$ is a factor of $ax^4 + bx^3 + cx^2 + dx + e$,

which of the following are true ?

- a) $b + d = 0$
- b) $a + b + c = d + e$
- c) $a + b + c + d + e = 0$
- d) $a + b + c = 0$
- e) $a + c + e = 0$
- f) $d + e = 0$

- (i) {a,c,e} (ii) {b,a} (iii) {f,b,e} (iv) {d,c} (v) {d,a,c}
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9. Find the value of k such that $2x^3 + 15x^2 + kx + 6$

is exactly divisible by $(2x + 1)$

- (i) 18 (ii) 19 (iii) 17 (iv) 20 (v) 21
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10. If $\frac{3}{2}$ and $(-\frac{1}{2})$ are the zeros of the polynomial

$f(x) = ax^4 - 8x^3 - 44x^2 + 18x + b$, find the value of a and b

- (i) 19, 17
 - (ii) 17, 18
 - (iii) 17, 15
 - (iv) 16, 18
 - (v) 16, 19
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11. Find the value of a and b such that

$ax^4 + 8x^3 - 18x^2 + bx + 4$ is exactly divisible by $(4x^2 - 1)$

(i) -3 , 7

(ii) 8 , -2

(iii) 9 , -2

(iv) -1 , 9

(v) 8 , -1

12. If -2 is the zero of the polynomial $f(x) = kx^2 + 14x + 20$, find k

(i) 5 (ii) 2 (iii) 1 (iv) 3 (v) 0

13. If the polynomial $f(x) = kx^2 - 4x - 15$ is exactly divisible by $(2x - 5)$, find k

(i) 4 (ii) 3 (iii) 7 (iv) 2 (v) 5

14. If the polynomials $ax^2 - 4x - 7$ and $2x^2 + ax - 1$ leave the same remainder when divided by $(x + 2)$, find the value of a

(i) 0 (ii) 4 (iii) 1 (iv) (-1) (v) 2

Assignment Key

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