Q1. Find a cubic polynomial with the sum, sum of product of zeroes taken two at a time and the product of zeroes as $2, -7, -14$ respectively. Ans. $x^3 - 2x^2 - 7x + 14$

Q2. Find a cubic polynomial with the sum, sum of product of zeroes taken two at a time and the product of zeroes as $4, 1, -6$ respectively. Ans. $x^3 - 4x^2 + x + 6$

Q3. If two zeroes of $x^3 + x^2 - 9x - 9$ are 3 and -3, then find its third zero. Ans. -1

Q4. If two zeroes of $x^3 + x^2 - 5x - 5$ are $\sqrt{5}$ and $-\sqrt{5}$, then find its third zero. Ans. -1

Q5. If the zeroes of the polynomial $x^3 - 3x^2 + x + 1$ are $a - b$, a, $a + b$, find a and b. Ans. $a = 1, b = \pm\sqrt{2}$

Q6. If the zeroes of the $2x^3 - 12x^2 + 5x - 14$ are $a - b$, a, $a + b$, find a and b. Ans. $a = 2, b = \pm\frac{1}{\sqrt{2}}$

Q7. If a polynomial $3x^4 - 4x^3 - 16x^2 + 15x + 14$ is divided by another polynomial $x^2 - 4$, the remainder comes out to be $px + q$. *Find the value of p and q.* *Ans.* $p = -1, q = -2$

Q8. If a polynomial $6x^4 + 8x^3 + 17x^2 + 21x + 7$ is divided by another polynomial $3x^2 + 4x + 1$, the remainder comes out to be $ax + b$. *Find the value of a and b.* *Ans.* $a = 1$, $b = 2$

Q9. If the polynomial $x^4 - 6x^3 + 16x^2 - 25x + 10$ is divided by another polynomial $x^2 - 2x + k$, the remainder comes out to be $x + a$, *find k and a*. *Ans.* $k = 5$, $a = -5$

Q10. Find all the zeroes of $2x^4 - 3x^3 - 3x^2 + 6x - 2$, if you know two of its zeroes are $\sqrt{2}$ *and* $-\sqrt{2}$. Ans. $1, \frac{1}{2}$

Q11. Find other zeroes of the polynomial p(x) = $2x^4 + 7x^3 - 19x^2 - 14x + 30$ if two of its zeroes are $\sqrt{2}$ *and* $-\sqrt{2}$. Ans. $\frac{3}{2}, -5$

Q12. Obtain all the zeroes of $3x^4 + 6x^3 - 2x^2 - 10x - 5$ if two of its zeroes are $\sqrt{\frac{5}{3}}$ *and* $-\sqrt{\frac{5}{3}}$. *Ans.* $-1, -1$

Q13. Obtain all the zeroes of $3x^4 - 12x^3 + 10x^2 + 8x - 8$ if two of its zeroes are $\sqrt{\frac{2}{3}}$ *and* $-\sqrt{\frac{2}{3}}$. *Ans.* $2, 2$

Q14. Find all the zeroes of the polynomial $2x^4 - 9x^3 + 5x^2 + 3x - 1$ if two of its zeroes are $2 \pm \sqrt{3}$. Ans. $1, -\frac{1}{2}$

Q15. If two zeroes of the polynomial $x^4 - 6x^3 - 26x^2 + 138x - 35$ are $2 \pm \sqrt{3}$, *find other zeroes.* *Ans.* $-5, 7$

Q16. What must be subtracted from the polynomial f(x) = $x^4 + 2x^3 - 13x^2 - 12x + 21$ so that the resulting polynomial is exactly divisible by $x^2 - 4x + 3$? Ans. $2x - 3$

Q17. What must be subtracted from the polynomial $8x^4 + 14x^3 + x^2 + 7x + 8$, so that the resulting polynomial is exactly divisible by $4x^2 - 3x + 2$? Ans. $6x + 2$

Q18. What must be added in the polynomial $x^3 - 2x^2 - 3x - 4$ so that it is completely divisible by $x^2 - x$? Ans. $4x + 4$

Q19. What must be added $6x^5 + 5x^4 + 11x^3 - 3x^2 + x + 5$ to so that it is exactly divisible by $3x^2 - 2x + 4$? Ans. $17x - 17$

Q20. Form a quadratic polynomial whose zeroes are $\sqrt{2}$ *and* $-2\sqrt{2}$. *Ans.* $x^2 - \sqrt{2}x - 4$

Q21. Form a quadratic polynomial whose zeroes are $\frac{3}{5}$ and $-\frac{1}{2}$. *Ans.* $10x^2 - x - 3$

Q22. If α and β are the zeroes of the $4x^2 + 3x + 7$. Find the value of $\alpha + \beta$ *and* $\alpha\beta$. *Ans.* $-\frac{3}{4}$, $\frac{7}{4}$

Q23. If α and β are the zeroes of the polynomial $2y^2 + y + 5$, then find the value of $\alpha + \beta + \alpha\beta$. Ans. 2