1. Factorise the polynomial $x^3 + 13x^2 + 32x + 20$
   A. $(x + 4)(x^2 + 9x + 5)$
   B. $(x + 5)(x^2 + 8x + 4)$
   C. $(x + 2)(x^2 + 6x + 5)$
   D. $(x + 3)(x^2 + 7x + 6)$ (B)

Explanation: The factorisation of $x^3 + 13x^2 + 32x + 20$ is $(x + 5)(x^2 + 8x + 4)$ This can be verified by expanding the factors.

2. Which method is used for factorising $z^3 + 13x^2+32x + 20$?
   A. Splitting the middle term
   B. Synthetic division
   C. Factor theorem
   D. Grouping terms (A)

Explanation: The splitting middle term method is used. By finding numbers that multiply to 20 and sum to 13, we split and factorise the given polynomial.

3. What is the first factor of $x^3 + 13x^2 + 32x + 20$?
   A. $x + 5$ B. $x + 4$
   C. $x + 1$ D. $x + 2$ (A)

Explanation: The first factor of $x^3 + 13x^2 + 32x + 20$ is $x + 5$ as verified by using the factor theorem.

4. Factorise the polynomial $2y^3 + y^2 - 2y – 1$
   A. $(2y + 1)(y^2 - y - 1)$
   B. $(y + 1)(2y^2 + y - 1)$
   C. $(y + 1)(2y^2 - y - 1)$
   D. $(y - 1)(2y^2 + y - 1)$ (C)

Explanation: The correct factorisation of $2y^3 + y^2 - 2y - 1$ $(y + 1)(2y^2 - y - 1)$

5. What method is used to factorise $2y^3 + y^2 - 2y-1$?
   A. Splitting the middle term
   B. Synthetic division
   C. Grouping terms and factoring common elements
   D. Factor theorem (C)

Explanation : The method used for factorising $2y^3 + y^2 - 2y - 1$ is grouping and factoring common elements.

6. . What is the first step in factorising $x^3 + 13x^2 + 32x + 20$?
   A. Apply synthetic division
   B. Split the middle term
   C. Group the terms and factor common elements
   D. Use the quadratic formula (B)

Explanation: The first step is to split the middle term, which allows us to break the polynomial into two simpler terms for factorization

7. . Which of the following is the result of factorising $x^3 + 13x^2 + 32x +20$?
   A. $(x + 5)(x^2 + 8x + 4)$
   B. $(x + 4)(x^2 + 7x + 5)$
   C. $(x + 2)(x^2 + 6x + 5)$
   D. $(x + 3)(x^2 + 9x + 5)$ (A)

Explanation: The correct factorisation of $x^3 + 13x^2 + 32x + 20$ is $(x + 5)(x^2 + 8x + 4)$ as shown in the previous solutions.

8. What is the highest degree of the polynomial $x^3 + 13x^2 + 32x +20$?
   A. 1 B. 2
   C. 3 D. 4 (C)

Explanation: The highest degree of the polynomial is 3, as the highest power of x is x^3

9. Which term of the polynomial $z^3 +13x^2+32x+20$ represents the constant?
   A. x^3 B. $13x^2$
   C. 32x D. 20 (D)

Explanation: The constant term in the polynomial is 20, which does not involve any variable.

10. What happens if you substitute x = -5 in the polynomial $x^3 + 13x^2 + 32x + 20$?
    A. The result will be 0, indicating that is a factor x + 5
    B. The result will be negative
    C. . The result will be positive
    D. The result will be undefined (A)

Explanation: Substituting x = - 5 into the polynomial gives 0, showing that x + 5 is a factor.

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