1. Factorise the following expressions.

   (a) $54m^3n + 81m^4n^2$

   (b) $15x^2y^3z + 25x^3y^2z + 35x^2y^2z^2$

2. Factorise the following polynomials.

   (a) $xy\left(z^2+1\right) + z\left(x^2+y^2\right)$

   (b) $2axy^2 + 10x + 3ay^2 + 15$

3. Factorise: $x^4 - y^4$ by using suitable identity.

4. Factorise the following polynomials

   (a) $6p(p-3) + 1(p-3)$

   (b) $14(3y-5z)^3 + 7(3y-5z)^2$

5. Factorise the following expressions:

   (a) $54x^3y + 81x^4y^2$

   (b) $15xy + 15 + 9y + 25x$

6. For $a = 3$, simplify $a^2 + 5a + 4$ and $a^2 - 5a$.

7. Factorise the following expressions.

   (a) $x^2 + 4x + 8y + 4xy + 4y^2$

   (b) $4p^2 + 2q^2 + p^2q^2 + 8$

8. Factorise: $4x^2 + 9 - 12x - a^2 - b^2 + 2ab$

9. Factorise the given expressions and divide that as indicated.

   (a) $39n^3(50n^2 - 98) \div 26n^2(5n-7)$

   (b) $44(p^4 - 5p^3 - 24p^2) \div 11p(p-8)$

10. If one of the factors of $(5\times 2 + 70x - 160)$ is $(x-2)$. Find the other factor.

11. Simplify: $333\times 333 - 2\times 333\times 133 + 133\times 133$.

12. Solve: $\left[49x^2 - \left(x^2-4\right)^2\right] \div \left[4 + 7x - x^2\right]$