

1. Factor: $36x^3 + 27x^4$

$$9x^3(4 + 3x)$$

2. Factor: $21a^2b^3 - 49a^3b^5 + 7a^9b^3$

$$7a^2b^3(3 - 7ab^2 + a^7)$$

3. Factor: $4x^2 + 36x + 56$

$$4(x + 7)(x + 2)$$

4. Factor: $x^2 - 6x + 8$

$$(x - 4)(x - 2)$$

5. Factor: $4x^2 - 81$

$$(2x - 9)(2x + 9)$$

6. Factor: $27x^2 - 12$

$$3(3x + 2)(3x - 2)$$

7. Factor: $4x^3 + 9x^2 - 12x - 27$

$$(4x + 9)(x^2 - 3)$$

8. Factor: $3x^2 + 11x + 6$

$$(x + 3)(3x + 2)$$

9. Solve: $2x^2 + 8x + 8 = 0$

$$x = -2$$

10. Solve: $3x^2 + 11x + 5 = -5$

$$x = -2, x = -\frac{5}{3}$$

11. Solve: $4x^2 + 3x - 12 = 3x - 3$

$$x = \frac{3}{2}, x = -\frac{3}{2}$$