

Factor each of the following completely.

1. $2x^5 + 16x^2 =$ _____

2. $x^4 - 81 =$ _____

3. $x^5 - 4x^3 + x^2 - 4 =$ _____

4. $x^4 + 3x^2 - 4 =$ _____

Express each of the following rational expressions in simplest form.

5. $\frac{6x^2 + 3x - 30}{6x^2 + 11x - 10} =$

6. $\frac{\frac{1}{9} + \frac{1}{3x}}{\frac{1}{9} - \frac{1}{x^2}} =$

Perform the indicated operations. Express your answers in simplest form.

7. $\frac{8}{x^2 - 4} - \frac{5}{2x^2 - 3x - 2} - \frac{3}{2x^2 + 5x + 2} =$

8. $\frac{5x^4 - 45x^2}{x^3 - 27} \cdot \frac{x^2 + 3x + 9}{10x^2 + 30x} =$

Solve each of the following equations.

9. $2(2x + 3) + 5(x - 6) = 0$

10. $3x - 0.5 = x + 0.25$

11. $\frac{2x-1}{8} - \frac{x+2}{12} = \frac{3x-7}{4} - \frac{x-4}{3}$

Express each of the following in simplest form.

12. $\sqrt{32x^9y^6} =$ _____

13. $\sqrt[3]{32x^9y^6} =$ _____

14. $\sqrt{3.2} =$

15. $\sqrt[3]{3.2} =$

16. $\sqrt{\frac{1}{6}} + \sqrt{\frac{3}{8}} =$

17. $\sqrt[3]{\frac{3}{8}} - \sqrt[3]{\frac{1}{9}} =$