

## Dividing Polynomials; Synthetic Division

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In problems 1-4, divide and simplify

1. $\frac{9x^3 + 15x^2}{3x}$	2. $\frac{x^2 - 4x + 2}{8x}$
3. $\frac{5x^2y + 10x^4y^3 - 20xy^7}{5x^3y^5}$	4. $\frac{8x^5 - 4x^3}{x^4}$

In problems 5-13, divide using long division

5. $\frac{x^2 + 12x + 27}{x + 3}$	6. $\frac{3x^2 - x + 4}{x - 1}$
7. $\frac{x^2 - 10x + 12}{x - 6}$	8. $\frac{x^3 + 6x^2 + 7x - 2}{x + 2}$
9. $\frac{x^3 - 7x + 2}{x + 1}$	10. $\frac{x^3 - 2x^2 + x - 3}{x + 6}$
11. $\frac{x^3 + 2}{x^2 - 1}$	12. $\frac{x^3 - 2x^2 + x - 1}{x^2 - x - 1}$
13. $\frac{x^5 - x^3 + 2}{x^4 + 1}$	

In problems 14-20, divide using synthetic division

14. $\frac{x^2 - 7x - 30}{x + 3}$	15. $\frac{3x^2 + 5x + 2}{x + 1}$
16. $\frac{x^2 + 8x - 1}{x - 2}$	17. $\frac{x^3 - 2x + 4}{x + 3}$
18. $\frac{x^4 + 2x^3 - x^2 + x - 4}{x + 1}$	19. $\frac{x^5 - 2x + 1}{x + 2}$
20. $\frac{2x^3 - 7x^2 + x - 1}{x - 1}$	