Sketch the graph of the following curves using the following procedures:
1) first derivative (for all polynomial functions)
2) critical points (for all polynomial functions)
3) sign line (for all polynomial functions)
4) asymptotes and x-intercepts (for all rational functions)
5) sketch all functions

1. $y = x^3 - 3x^2 + 3$

2. $f(x) = x^4 - 3x^3 + 3x^2 + 1$

3. $y = 2 - x - x^3$

4. $f(x) = x^4 - 4x^3 + 16x$

5. $f(x) = 3x^3 - 9x + 1$

6. $f(x) = \frac{1}{4}x^4 - \frac{1}{3}x^3 - x^2 + 1$

7. $y = 3x^4 + 4x^3$

8. $y = 3x^4 - 6x^2$

9. $f(x) = x^4 - 4x^3 + 16x$

10. $f(x) = x^4 - 8x^3 + 18x^2 - 16x + 5$

11. $y = x^5 - 5x$

12. $y = 3x^5 + 5x^3$

13. $y = \frac{2x-3}{5x-6}$

14. $y = \frac{x^2 - 6x + 5}{x + 5}$

15. $f(x) = \frac{x^2}{x^2 + 3}$

16. $y = \frac{x}{x^2 + 1}$

17. $y = \frac{x^2 + 1}{x^2 - 2}$

18. $y = \frac{2x}{x^2 - 1}$

19. $y = \frac{x^2 - 1}{x}$

20. $\frac{x^2 - 6x + 12}{x - 4}$