

## MATH 135, Algebra Review, Spring 2010

1. Find the equation of the line through (1,2) with slope -3 and graph the line.

2. Graph  $y = 3x - 1$ .

3. Graph  $y = x^2 - 4x + 1$

4. Graph  $y = -2x^2 - 4x + 1$

5. Solve  $3x^2 - 6x > 0$ .

6. Solve  $x^2 + x + 1 < 0$ .

7. Solve  $x^2 + 4x + 1 > 0$ .

8. Solve  $x(-1/x^2) - 2x < 0$ .

9. Solve  $x\sqrt{x+1} - \frac{x^2}{\sqrt{x+1}} > 0$ .

10. Solve

$$\frac{3x^2(x^2+1) - 2x(x^3)}{(x^2+1)^2} > 0.$$

11. Graph  $g(x) = |1-x| + 2$ .

12. Simplify the expression  $\frac{3(x+1)-(3x-1)}{(x+1)^2}$ .

13. Factor the expression  $3(2x)(x^2 + 1)^2(-3x + 1)^2 - 6(x^2 + 1)^3(-3x + 1)$ .

14. Factor the expression  $x^{1/3}(x + 2)^{2/3} + x^{4/3}(x + 2)^{-1/3}$ .

15. Graph  $f(x) = \sqrt{x}$  and  $g(x) = x$  on the same graph.

16. Graph  $f(x) = x^2$  and  $g(x) = x$  on the same graph.