Math 231 Worksheet 1

1. Expand and simplify.

$$(x+3)(4x-5)$$

2. Factor the expression.

$$4x^2 - 25$$

3. Simplify the rational expression.

$$\frac{x^2+3x+2}{x^2-x-2}$$

4. Solve the equation.

$$x^2 - x - 12 = 0$$

5. Solve the inequality. Write your answer using interval notation.

$$x^2 < 2x + 8$$

6. Sketch the graph of the function.

$$y = x^2 - 1$$

7. Find the domain of the function.

$$\sqrt{x^2-1}$$

8. If $f(x) = x^2 + 2x - 1$ and $g(x) = 2x - 3$, find the composition.

$$g \circ f$$

Answers:

(1) $4x^2 + 7x - 15$
(2) $(2x - 5)(2x + 5)$
(3) $\frac{x+2}{x-2}$
(4) $-3, 4$
(5) $(-2, 4)$
(7) $(-\infty, -1]$ and $[1, \infty)$
(8) $2x^2 + 4x - 5$