

# Precalculus

## Homework

### Inverse functions

1. Find the inverse function. You are asked to do the algebra only; you are not asked to determine the domain or range of the function or its inverse.

(a)  $f(x) = 3x^2 + 4x - 7$ , where  $x \geq -\frac{2}{3}$ .

(b)  $f(x) = 2x^2 + 3x - 5$ , where  $x \geq -\frac{3}{4}$ .

(c)  $f(x) = \frac{2x+5}{x-4}$ , where  $x \neq 4$ .

(d)  $f(x) = \frac{3x+5}{2x-4}$ , where  $x \neq 2$ .

(e)  $f(x) = \frac{5x+6}{4x+5}$ , where  $x \neq -\frac{5}{4}$ .

(f)  $f(x) = \frac{2x-3}{-3x+4}$ , where  $x \neq \frac{4}{3}$ .

2. Find the inverse function and its domain.

(a)  $y = \ln(x+3)$ .

(b)  $y = 4 \ln(x-3) - 4$ .

(c)  $y = 2 \ln(-2x+4) + 1$

(d)  $f(x) = e^{x^3}$ .

(e)  $y = (\ln x)^2, x \geq 1$ .

(f)  $y = \frac{e^x}{1+2e^x}$ .

(g)  $f(x) = 2^{2x} + 2^x - 2$ .