Exercise sheet 6:
Unification

Exercise 1

Apply one way unification (matching) to the following pairs of expressions. Outline the behaviour of the matching process. Determine whether the process fails or succeeds in each case. In the case of success determine the resulting substition.

	pattern	target
(a)	$X = X$	$2 = 2$
(b)	$X = X$	$2 + 2 = 4$
(c)	$p(f(X, Y), Y)$	$p(f(a, g(b)), g(b))$
(d)	$X = b$	$a = Y$

Exercise 2

Apply two way unification to the following pairs of expressions. Outline the behaviour of the unification process. Determine whether the process fails or succeeds in each case. In the case of success determine the resulting substitions.

	exp1	exp2
(a)	$X = b$	$a = Y$
(b)	$X = b$	$Y = a$
(c)	$p(X, a)$	$p(f(Y), Y)$
(d)	$p(X, g(X))$	$p(f(Y), Y)$
(e)	$(a + X) + b$	$a + Y$