Solve the following logarithmic equations.

(1) $2log(x-1) = log(x+1)$

$$log_2(x-1) + log_2(x+2) = 2$$
$$log_2(x-1)(x+2) = 2$$
$$(x-1)(x+2) = 4$$
$$x^2 + x - 6 = 0$$
$$(x+3)(x-2) = 0$$
$$x = -3, 2$$

Since x >0,

$x - 1 > 0$, or $x + 2 > 0$

which results to $x > 1$

(2) $log_5(x+1) + log_5(x-3) = 1$

(3) $log_2(x+1) = log_2(2-x) + 1$

(4) $(1 + log_2 x) \cdot log_2 x = 2$

(5) $(log_3 x)^2 - 5log_3 x + 6 = 0$

(6) $(log_2 x)^2 = log_2 x^2 + 3$

(7) $2log_2 x - 3log_x 2 + 5 = 0$