$$x + y + z = 8$$
$$ax - y = 3$$
$$-x + 3y + 4z = b$$

a) There is no unique solution solution to the system of equations. Find the value of a.
b) Given that the system can be solved, find the value of b.

a)

	$x + y + z = 8$	A
	$ax - y = 3$	B
	$-x + 3y + 4z = b$	C
$4 \times$A	$4x + 4y + 4z = 32$	
$4 \times$A-C	$5x + y = 32 - b$	

	$ax - y = 3$	B
	$5x + y = 32 - b$	$4 \times$A-C

Equate the coefficients of y

$-1 \times$B

$$-ax + y = -3$$
$$5x + y = 32 - b$$
$$a = -5$$

b)

$$5x + y = -3$$
$$5x + y = 32 - b$$

Given that the system can be solved

$$-3 = 32 - b$$
$$b = 35$$