Practice Test 2

1. Solve:

a) $x+y+z=8$ ①
$2x+y-z=1$ ②
$x-2y-3z=-17$ ③

① + ② 3·① + ③

$3x+2y=9$ $4x+y=7$

$y=7-4x$

$3x+2(7-4x)=9$

$3x+14-8x=9$

$-5x=-5$

$x=1$

$y=7-4\cdot 1=3$

use ① ⇒

$1+3+z=8$

$4+z=8$

$z=4$

$(1,3,4)$

b) $2x-3y+z=2$ ①
$x-5y+5z=3$ ②
$3x-y-3z=1$ ③

① + (-2)·②

$7y-9z=-4$

(-3)② + ③

$14y-18z=-8$

$7y-9z=-4$ ①
$14y-18z=-8$ ②
$-2$① + ②

$0=0$

Infinite number of solutions.

2. Solve:

a) $|3x+4|+1=7$

$|3x+4|=6$

$3x+4=6$ or $3x+4=-6$

$3x=2$ or $3x=-10$

$x=2/3$ or $x=-10/3$

b) $|3a+1|=|2a-4|$

$3a+1=2a-4$ $3a+1=-(2a-4)$

$a=-5$ $3a+1=-2a+4$

$5a=3$

$a=3/5$