1. You would give the cashier three $19 coins, which amounts to $57. The cashier would give you back three $14 coins, which is $56.

2. $1 = m(109) + n(95)$

$109 = 1(95) + 14$. $14 = 1(109) - 1(95)$

$\gcd(109, 95) = \gcd(95, 14)$

$95 = 6(14) + 11$ $11 = 1(95) - 6(14) = 1(95) - 6(1(109) - 1(95))$

$= 7(95) - 6(109)$

$\gcd(95, 14) = \gcd(14, 11)$

$14 = 1(11) + 3$ $3 = 14 - 11 = 1(109) - 1(95) - (7(95) - 6(109))$

$= 7(109) - 8(95)$

$\gcd(14, 11) = \gcd(11, 3)$

$11 = 3(3) + 2$ $2 = 11 - 3(3) = 7(95) - 6(109) - 3(7(109) - 8(95))$

$= 31(95) - 27(109)$

$\gcd(11, 3) = \gcd(3, 2)$

$3 = 1(2) + 1$ $1 = 3 - 2 = 7(109) - 8(95) - (31(95) - 27(109))$

$= 34(109) - 39(95)$

So, you'd give the cashier 34 $109 coins and the cashier would give you back 39 $95 coins.

3. $1 = m(37) + n(16)$

$37 = 2(16) + 5$ $5 = 1(37) - 2(16)$

$\gcd(37, 16) = \gcd(16, 5)$

$16 = 3(5) + 1$ $1 = 16 - 3(5) = 1(16) - 3(1(37) - 2(16))$

$= 7(16) - 3(37)$

So, on one side you'd put 7 16 kg weights and the other side you'd put 3 - 37 kg weights, and the first side would be 1 pound heavier than the second side.