Simplex method for an equality constraint

- Maximize the following:

$$z = x + 2y$$

w.r.t:

$$2x + y \leq 20$$

$$-4x + 5y \leq 10$$

$$-x + 2y \geq -2$$

$$-x + 5y = 15$$

$$x, y \geq 0$$

In [1]:
```
from scipy.optimize import linprog

obj = [-1, -2]

lhs_ineq = [[2, 1],
            [-4, 5],
            [1, -2]]

rhs_ineq = [20,
            10,
            2]

lhs_eq = [[-1, 5]]
rhs_eq = [15]

bound =  [(0, float("inf")),
          (0, float("inf"))]
```

In [2]:
```
z = linprog(c = obj, A_ub = lhs_ineq, b_ub = rhs_ineq,
            A_eq = lhs_eq, b_eq = rhs_eq,
            bounds = bound, method = "revised simplex")

z
```

Out[2]:
```
     con: array([0.])
     fun: -16.818181818181817
 message: 'Optimization terminated successfully.'
     nit: 3
   slack: array([ 0.        , 18.18181818,  3.36363636])
  status: 0
 success: True
       x: array([7.72727273, 4.54545455])
```