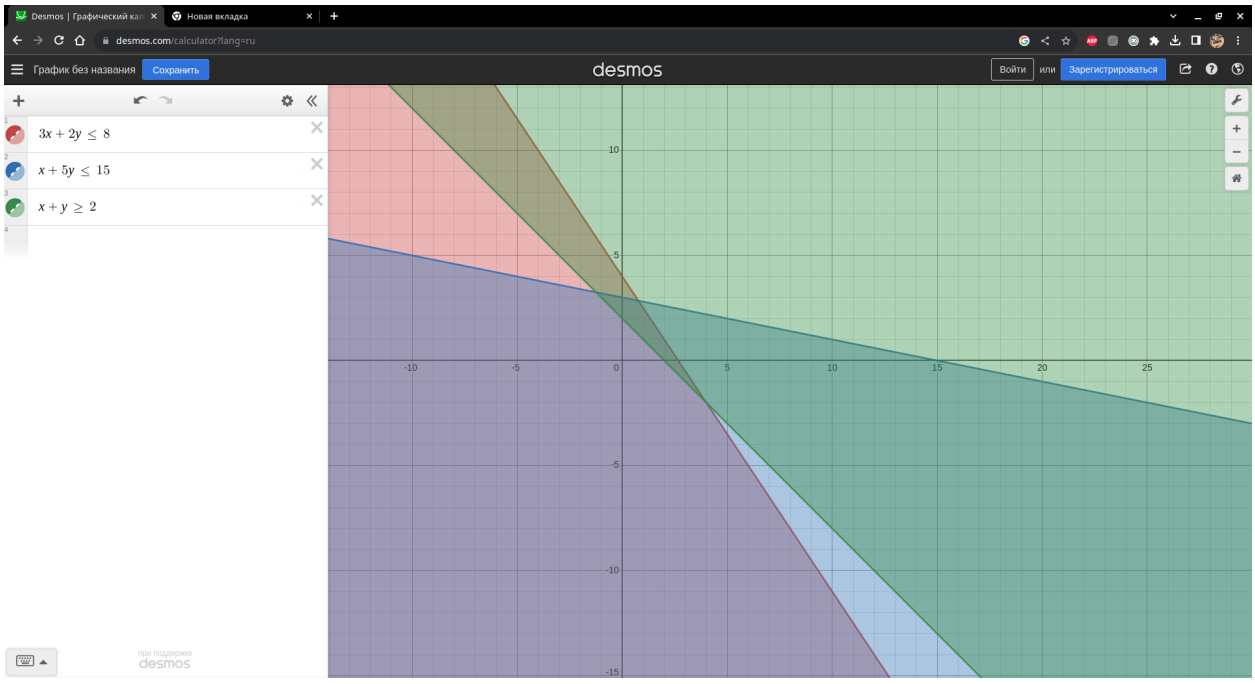
Задание 19

19	Столяров Никита Сергеевич	$z = 3x_1 + 3x_2 \to min$ $\begin{cases} 3x_1 + 2x_2 \le 8, \\ x_1 + 5x_2 \le 15, \\ x_1 + x_2 \ge 2, \\ x_1, x_2 \ge 0. \end{cases}$

Визуализация графика



Листинг программы

```
obj = [-3, -3]

lhs_ineq = [[3, 2],
      [1, 5],
      [1, 1]]
```

```python
rhs_ineq = [8, 6, 3]

bnd = [(0, float("inf")),  # Границы x
       (0, float("inf"))]  # Границы y

opt = linprog(c=obj, A_ub=lhs_ineq, b_ub=rhs_ineq, method="highs")

print(opt)
print("оптимальное решение: X:", max(opt.x))
```

Результат работы

```
stolar@stolar-NMH-WCX9:~/PROJECTS/Programming-GUAP/statistic/2$ python3 main.py
        message: Optimization terminated successfully. (HiGHS Status 7: Optimal)
        success: True
         status: 0
            fun: -8.76923076923077
              x: [ 2.154e+00  7.692e-01]
            nit: 2
          lower:  residual: [ 2.154e+00  7.692e-01]
                 marginals: [ 0.000e+00  0.000e+00]
          upper:  residual: [       inf        inf]
                 marginals: [ 0.000e+00  0.000e+00]
          eqlin:  residual: []
                 marginals: []
        ineqlin:  residual: [ 0.000e+00  0.000e+00  7.692e-02]
                 marginals: [-9.231e-01 -2.308e-01 -0.000e+00]
 mip_node_count: 0
 mip_dual_bound: 0.0
        mip_gap: 0.0
оптимальное решение: X: 2.1538461538461537
```