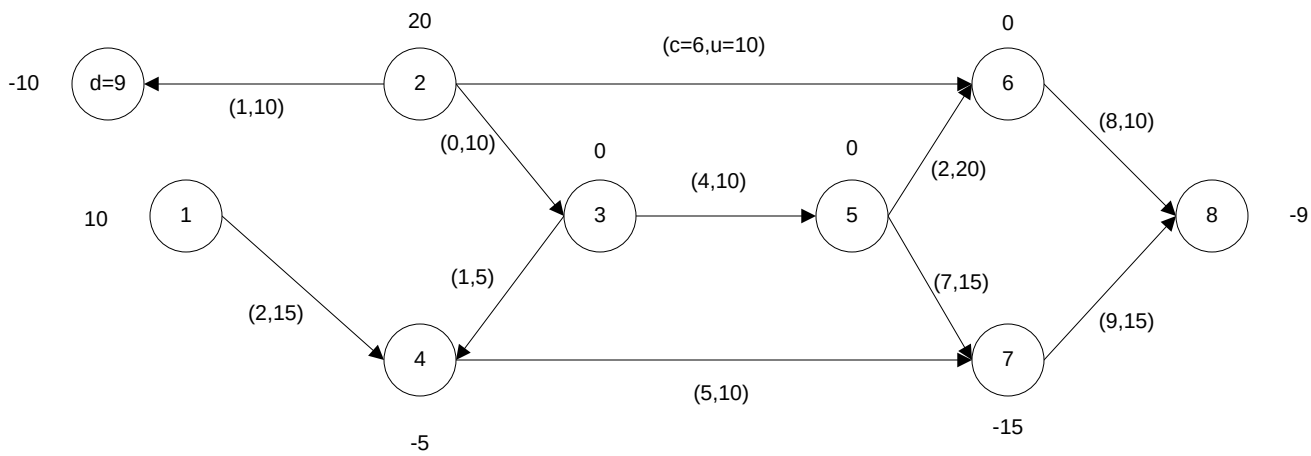
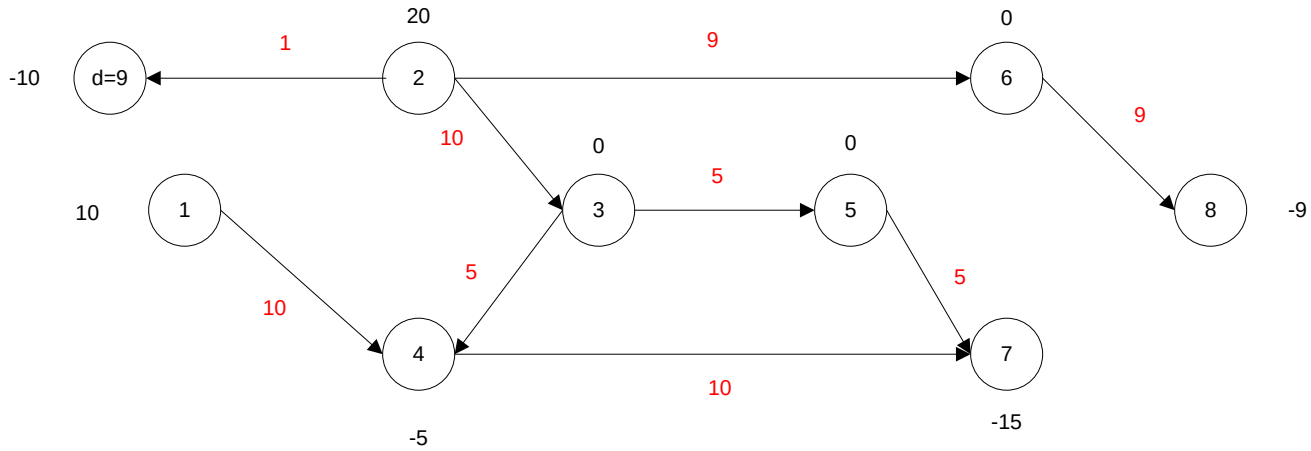




Optimal Solution



- OPT: 257, Flow =, Node 8 sd=-9 (vs -10)
- $x[2,1] + x[2,3] + x[2,6] = 20$
- $-x[2,1] + x[1,4] = 10$ is now
- $x[1,4] = 10$ so, we have $x[2,1]$ with 1 +1 and 0 -1.
- So, we add a dummy node and surrogate arc for $x[2,1]$.
- $x[2,d] + x[2,3] + x[2,6] = 20$
- $x[1,4] = 10$
- $-x[2,d] \geq -x[2,1].ub = -10$

Cost:

$(2,1) = 1 * 1 = 1$
 $(2,6) = 9 * 6 = 54$
 $(2,3) = 10 * 0 = 0$
 $(1,4) = 10 * 2 = 20$
 $(3,4) = 5 * 1 = 5$
 $(3,5) = 5 * 4 = 20$
 $(4,7) = 10 * 5 = 50$
 $(5,7) = 5 * 7 = 35$
 $(6,8) = 9 * 8 = 72$
 Total = 257