# Minimum-cost and maximum-profit assignments

Name: _____ Date: _____

6 questions | 14 marks

**1.** Form the opportunity-loss matrix for the supplied profits using $K = 19$. [3 marks]

Profit ($100 units) from assigning each team to one distinct contract.

| Team | Contract 1 | Contract 2 | Contract 3 |
|---|---|---|---|
| P | 18 | 14 | 13 |
| Q | 15 | 17 | 12 |
| R | 16 | 11 | 19 |

**2.** For a four-person problem with $K = 30$, the minimum transformed total is 17. Find the maximum profit. [2 marks]

**3.** Two workers have profits A:$[12, 8]$ and B:$[10, 11]$. Find the best complete assignment. [2 marks]

**4.** For costs A:$[12, 8]$ and B:$[10, 11]$, find the minimum assignment and compare it with the previous profit objective. [2 marks]

**5.** If 5 is added to every profit in a three-person square table, does the optimal pairing change? What happens to its total? [2 marks]

**6.** An assignment gives predicted profits $700, $900 and $600, but the last two contracts compete for the same machine. Explain why adding them may overstate the achievable profit. [3 marks]