ANSWERS TO PRACTICE PROBLEMS 2

1. In each of the six games (whether they are played by you or by the police) Not Pay strictly dominates Pay. Hence, since there are only two strategies, Not Pay is a strictly dominant strategy.
For the Nice Freelance dognapper, Not Kill is a strictly dominant strategy,
for the Nasty Freelance Kill is a strictly dominant strategy,
while for the Professional dognapper neither strategy dominates the other.
Thus: in the game played against a Nice Freelance (Not Pay, Not Kill) is a dominant strategy equilibrium,
in the game against a Nasty Freelence (Not Pay, Kill) is a dominant strategy equilibrium.
In the game against a Professional dognapper there is no dominant strategy equilibrium.

2. **For Yvette** (row player) a shorter route dominates a longer route that goes through the same segments, thus: b weakly dominates each of the following: bac, bacd, ab, dcab,
bac weakly dominates bacd and dcab
ab weakly dominates bac, bacd and dcab,
ac weakly dominates each of the following: bac, acd, dcab and bacd
acd weakly dominates bacd and dcab
dc weakly dominates each of the following: bacd, acd, dcab
d weakly dominates each of the following: dc, bacd, acd, dcab
For Zoe (column player) a longer route dominates a shorter route that goes through the same segments, thus ba weakly dominates b, cd weakly dominates d

3.

- **(a)** Player 1 does not have a dominant strategy.
- **(b)** For Player 2 *c* is a weakly dominant strategy.
- **(c)** There is no dominant strategy equilibrium.
- **(d)** For Player 1 D is weakly dominated by C (and A and B are equivalent to each other).
- **(e)** For Player 2 *a* is weakly dominated by *b* or *c*, *b* is weakly dominated by *c*, *d* is strictly dominated by *b* or *c* and weakly dominated by *a* or *e* or *f*, *e* is weakly dominated by *c* or *b* or *f*, *f* is weakly dominated by *c*. Thus the dominated strategies are: *a*, *b*, *d, e* and *f* (obviously, since *c* is a dominant strategy!).

4. **Game A.** For Antonia: 4 strictly dominates both 0 and 1 and weakly dominates 2 and 3.
Thus 4 is a weakly dominant strategy. 0 and 1 are equivalent.
2 weakly dominates both 0 and 1. 3 weakly dominates 2.
For Bob: 1 weakly dominates 2, 0 weakly dominates both 1 and 2. Thus 0 is a weakly dominant strategy.
The dominant-strategy equilibrium is thus (4, 0).
Game B. For Antonia: 0 weakly dominates 1, 4 weakly dominates 2, and nothing else.
Thus Antonia does not have a dominant strategy.
For Bob: 0 weakly dominates 2, 1 weakly dominates 2, and nothing else. Thus Bob does not have a dominant strategy.
There is no dominant-strategy equilibrium.

Game C. For Antonia: 6 strictly dominates 2, 4 weakly dominates 2, and nothing else. Thus Antonia does not have a dominant strategy.
For Bob: 1 strictly dominates both 0 and 2, 0 weakly dominates 2. Thus 1 is a strictly dominant strategy for Bob. There is no dominant-strategy equilibrium.