Duncanrig Secondary School: Mathematics Department

S3 National 5 Homework 10B

1. Factorise fully:
   (a) $2 - 50y^2$ (b) $x^2 - x - 20$ (c) $2x^2 + x - 6$

2. Multiply out the brackets and collect like terms:
   (a) $(2y - 3)(y^2 + 4y - 1)$ (b) $(2x - 1)(x + 4)(x - 5)$

3. In January 2009, it was estimated that the number of monkeys in a colony was 5000. The number of monkeys is decreasing at the rate of 12% per year. How many monkeys are expected to be in this colony in January 2012? Give your answer to the nearest 10.

4. Sarah leaves East Kilbride at 15:40 and arrives in Edinburgh at 17:05. Given that Edinburgh is 51.95 miles from East Kilbride, calculate Sarah's average speed.

5. Mark's flight left at 7.45am. If the plane journey was 1800km and the average speed of the plane was 540km/h, at what time did the flight arrive?

6. The painting I bought last year rose in value by 12% this year. It is now worth £1344. How much must I have paid for the painting originally?