(C2-5.3a) Name:

Homework Questions 3 – Using Factorials in the Binomial Expansion

1. Write down how many terms there will be in the following expansions

a) $(x + 3)^5$ | 6

c) $(x + 3y)^4$ | 5

b) $(2 - x)^7$ | 8

d) $(3 - 2x)^8$ | 9

2. Write down the full expansions of the following, show all your working out

a) $(x + 4)^4$

$x^4 + 16x^3 + 96x^2 + 256x + 256$

b) $(2x - 3y)^3$

$8x^3 - 36x^2y + 54xy^2 - 27y^3$

3. Find the first 3 terms of the expansions, show your working out

a) $(x + 2y)^3$

$x^3 + 6x^2y + 12xy^2$

b) $(3x - y)^5$

$243x^5 - 405x^4y + 270x^3y^2$

4. Find the coefficient of x^2 of the following expansions

a) $(1 - x)^5$

10

b) $(3 - 4x)^4$

864

5. The coefficient of x^2 in the expansion below is 1944. Find the value of a

$(3 + 2ax)^4$

±3