Name _____ Date _____ Class _____

Binomial Expansion – Using Pascal's Triangle WS

Use Pascal's Triangle to expand each binomial.

1. $(x + y)^3$

2. $(2x + y)^4$ $= 1(2x)^4 \quad 4(2x)^3y^1 \quad 6(2x)^2y^2 \quad 4(2x)^1y^3 \quad 1(2x)^0y^4$
$= 16x^4 + 32x^3y + 24x^2y^2 + 8xy^3 + y^4$

3. $(m + 3n)^3$
$= 1m^3(3n)^0 \quad 3m^2(3n)^1 \quad 3m^1(3n)^2 \quad 1m^0(3n)^3$
$= m^3 + 9m^2n + 27mn^2 + 27n^3$

4. $(p + q)^5$

5. $(x + y)^5$

6. $(4x + y)^4$

7. $(2x + y)^5 = 1(2x)^5 \quad 5(2x)^4y^1 \quad 10(2x)^3y^2 \quad 10(2x)^2y^3 \quad 5(2x)^1y^4 \quad 1y^5$
$= 32x^5 + 8x^4y^1 + 80x^3y^2 + 40x^2y^3 + 10xy^4 + y^5$

8. $(n + 2m)^4$

9. $(3x + 2y)^4 = 1(3x)^4(2y)^0 \quad 4(3x)^3(2y)^1 \quad 6(3x)^2(2y)^2 \quad 4(3x)^1(2y)^3 \quad 1(2y)^4$
$= 81x^4 + 216x^3y + 216x^2y^2 + 64xy^3 + 16y^4$

10. $(4 - 3x)^6$