Name: _____

Operations with Polynomials

1)   Multiply out the following, tidying up the answers by putting together as much as possible.

(1) $3x(2x + 3y) + 4y(x + 7y)$
(2) $5p^2(2p + 3q) + q^2(3p + 5q) + pq(p + 2q)$

2)   Multiply out the following pairs of brackets.

1) $(x + 2)(x + 3)$ 2) $(a + 3)(a - 4)$

3) $(x - 2)(x - 3)$ 4) $(p + 3)(2p + 1)$

5) $(3x - 2)(3x + 2)$ 6) $(2x - 3y)(x + 2y)$

7) $(3a - 2b)(2a - 5b)$ 8) $(3x + 4y)^2$

9) $(3x - 4y)^2$ 10) $(3x + 4y)(3x - 4y)$

11) $(2p^2 + 3pq)(5p + 3q)$ 12) $(2ab - b^2)(a^2 - 3ab)$

13) $(a + b)(a^2 - ab + b^2)$ 14) $(a - b)(a^2 + ab + b^2)$

15) $(2x + 3y)(x + 5y)$ 16) $(3a - 5b)(2a - b)$

17) $(3x + 2)^2$ 18) $(2y - 5)^2$

19) $(2p^2 + 3pq)(q^2 - 2pq)$