Name: **Key**

A5 – Polynomials Review

Simplify.

1. $(3x^2 + 2x) + (2x^2 + 5xy + 6x + 9)$

$$\boxed{5x^2 + 8x + 5xy + 9}$$

2. $8x^2 - 9x + 5xy - 8x(3y + 2x)$

$$8x^2 - 9x + 5xy - 24xy - 16x^2$$
$$\boxed{-8x^2 - 9x - 19xy}$$

3. $(3x^2 + 4x - 9) - (2x^2 - 5x + 7)$

$$3x^2 + 4x - 9 - 2x^2 + 5x - 7$$
$$\boxed{x^2 + 9x - 16}$$

4. $(9x^2 + 2x - 6) - x(5x + 2)$

$$9x^2 + 2x - 6 - 5x^2 - 2x$$
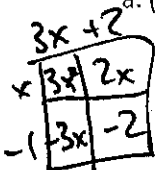$$\boxed{4x^2 - 6}$$

5. $5p(2p + 1)$

$$\boxed{10p^2 + 5p}$$

6. $8k(2k + y + 2)$

$$\boxed{16k^2 + 8ky + 16k}$$

7. Given the following expressions, write them as a product (factored form) or as a sum (standard form)

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

$$\boxed{3x^2 - x - 2}$$

b. $-3x(2x + 4)$

$$\boxed{-6x^2 - 12x}$$

c. $x^2 - 6x + 8$

$$\boxed{(x - 4)(x - 2)}$$

d. $2x^2 - 18x + 40$

$$2(x^2 - 9x + 20)$$
$$\boxed{2(x - 5)(x - 4)}$$

e. $(x - 3)(x + 6)$

$$\boxed{x^2 + 3x - 18}$$

f. $x^2 + 6x + 5$

$$\boxed{(x + 5)(x + 1)}$$

g. $(3x - 4)(x - 8)$

$$3x^2 - 24x - 4x + 32$$
$$\boxed{3x^2 - 28x + 32}$$

h. $(2x + 4)(x - 3)$

$$2x^2 - 6x + 4x - 12$$
$$\boxed{2x^2 - 2x - 12}$$

Simplify:	9. $(2x-3)(4x+1)$	10. $(-3x-2)(2x+3)$
8. $(x-4)(x+6)$		
$$\boxed{x^2+2x-24}$$	$2x \quad -3$ $\begin{array}{c c}4x & \boxed{8x^2 \mid -12x} \\ 1 & \boxed{2x \mid 3}\end{array}$ $$\boxed{8x^2-10x-3}$$	$-6x^2-9x-4x-6$ $$\boxed{-6x^2-13x-6}$$
Factor:	12. x^2-9x+8	13. $x^2-5x-36$
11. $x^2+8x+12$		
$$\boxed{(x+6)(x+2)}$$	$$\boxed{(x-8)(x-1)}$$	$$\boxed{(x-9)(x+4)}$$
Solve:	15. $(x-5)^2+4=85$	16. $3x^2-10=54$
14. $x^2-2=62$		
$x^2=64$ $$\boxed{x=8}$$	$(x-5)^2=81$ $x-5=9$ $$\boxed{x=14}$$	$3x^2=64$ $x^2=21.3$ $$\boxed{x=4.62}$$