COMBINING POLYNOMIALS (ADDING)

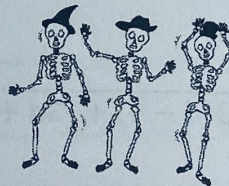**Warm Up:**

a) What do 'like terms' have in common? <u>same variable + exponent.</u>

b) Simplify each of the following expressions:

$3x + 8 - 9x + 15$	$-2x + 8x - 6 + 9 + x^2$	Distribute $3(4x - 8) - 2x$
$-6x + 23$	$x^2 + 6x + 3$	$12x - 24 - 2x$ $10x - 24$

ADDING LINEAR EXPRESSIONS

Case 1:	
$(3x + 4) + (5x + 6)$ **Distribute** 1 to each term (**hint**: *nothing changes* → *drop parenthesis.*) **Nothing** before parenthesis → Drop them $3x + 4 + 5x + 6$ $8x + 10$	**1)** $(x - 5) + (x - 2)$ $x - 5 + x - 2$ $2x - 7$ **2)** $(2x - 6) + (3x + 2)$ $2x - 6 + 3x + 2$ $5x - 4$
	3) $(2x + 1) + (x - 1)$ $2x + 1 + x - 1$ $3x + 0 = 3x$ **4)** $(-8z + 4) + (8z + 7)$ $-8z + 4 + 8z + 7$ $0z + 11 = 11$

Try These:

5) $(4a - 5) + (3a + 6)$

$4a - 5 + 3a + 6$

$7a + 1$

6) $(7x^2 - 8) + (3x^2 + 1)$

$7x^2 - 8 + 3x^2 + 1$

$10x^2 - 7$

Case 2:	**1)** $(4 - n) + 2(-5n + 3)$	**2)** $3(8x - 5) + (-2x + 9)$
$(x + 5) + 2(4x - 3)$	$4 - n - 10n + 6$	$24x - 15 - 2x + 9$
Distribute 2 to each term (4x and -3)	$-11n + 10$	$22x - 6$

Nothing before parenthesis → Drop them

$1x + 5 + 8x - 6$

$9x - 1$

3) $(3x - 11) + 4(4x + 7)$	**4)** $\frac{1}{2}(6x - 8) + 5(4 + 3x)$
$3x - 11 + 16x + 28$	$3x - 4 + 20 + 15x$
$19x + 17$	$18x + 16$

Partner Practice: *Add the following linear expressions. Remember your <u>integer rules</u>!*

1) $(5 + 2x) + (x - 3)$	**2)** $(y + 3) + 2(2y + 1)$	**3)** $(2m + 3) + 3(m + 2)$
$3x + 2$	$y + 3 + 4y + 2$	$2m + 3 + 3m + 6$
	$5y + 5$	$5m + 9$
4) $(n + 8) + (n - 12)$	**5)** $(7 - b) + (3b + 2)$	**6)** $(2x - 6) + 4(x - 3)$
$n + 8 + n - 12$	$7 - b + 3b + 2$	$2x - 6 + 4x - 12$
$2n - 4$	$2b + 9$	$6x - 18$
7) $5(3k - 7) + (3k + 2)$	**8)** $\frac{1}{3}(9 - 6m) + \frac{1}{4}(12m - 8)$	**9)** $(2w - 9) + (-4w - 5)$
$15k - 35 + 3k + 2$	$3 - 2m + 3m - 2$	$2w - 9 - 4w - 5$
$18k - 33$	$m + 1$	$-2w - 14$
10) $(8m - 16) + 3(4m + 6)$	**11)** $2(d - 4) + (3d + 14)$	**12)** $(9m + 16) + \frac{1}{2}(2m + 12)$
$8m - 16 + 12m + 18$	$2d - 8 + 3d + 14$	$9m + 16 + m + 6$
$20m + 2$	$5d + 6$	$10m + 22$