

## 3.2 Adding and Subtracting Linear Expressions p.88

### Linear Expression

- an algebraic expression in which the exponent of the variable is 1
- the graph is always a straight line

### Linear or non-linear?

- $-4x$   $\longrightarrow$  linear
- $x^2$   $\longrightarrow$  non-linear
- $5 - \frac{1}{6}x$   $\longrightarrow$  linear
- $-7x^3 + x$   $\longrightarrow$  non-linear
- $3a + 5$   $\longrightarrow$  linear
- $b^5 - 1$   $\longrightarrow$  non-linear

Determine if the parenthesis are necessary or not. Think **DISTRIBUTIVE PROPERTY**.

### Addition:

1)  $(x - 2) + (3x + 8)$

$$\underline{1x} - \underline{2} + \underline{3x} + \underline{8}$$

$$\boxed{4x + 6}$$

2)  $(-4y + 3) + (11y - 5)$

$$-4y + 3 + 11y - 5$$

$$\boxed{7y - 2}$$

3)  $(x + 10) + (x - 14)$

$$\underline{x} + 10 + \underline{x} - 14$$

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

4)  $2(-7.5z + 3) + (5z - 2)$

$$\underline{-15z} + \underline{6} + \underline{5z} - \underline{2}$$

$$\boxed{-10z + 4}$$

$$5) -5(3x - 7) + 3(-4x - 8)$$

$$\underline{-15x + 35} \quad \underline{-12x - 24}$$

$$\underline{-27x + 11}$$

Subtraction:

$$6) (5x + 6) - (-x + 6)$$

$$\underline{5x + 6} \quad \underline{+x - 6}$$

$$\underline{6x}$$

$$7) (2x - 7) - (x + 9)$$

$$\underline{2x - 7} \quad \underline{-x - 9}$$

$$\underline{x - 16}$$

$$8) (5x + 4) - (1 - 2x)$$

$$\underline{5x + 4} \quad \underline{-1 + 2x}$$

$$\underline{7x + 3}$$

$$9) -3(2y - 9) - (5y + 4)$$

$$\underline{-6y + 27} \quad \underline{-5y - 4}$$

$$\underline{-11y + 23}$$

$$10) -2(c + 2.5) - 5(1.2c + 4)$$

$$\underline{-2c - 5} \quad \underline{-6c - 20}$$

$$\underline{-8c - 25}$$

$$11) (7Y + 5) - 2(4Y - 3)$$

$$\underline{7y + 5} \quad \underline{-8y + 6}$$

$$\underline{-y + 11}$$

$$12) \frac{1}{3}(9 - 6m) + \frac{1}{4}(12m - 8)$$