

SIMPLIFYING ALGEBRAIC EXPRESSIONS

Simplify each expression by collecting the like terms.

$$1 \quad 3x + 5 + 7x + 10 \\ = 10x + 15$$

$$2 \quad 7x - 3 + 3x - 2 \\ = 10x - 5$$

$$3 \quad 4a + b - a - 4b \\ = 3a - 3b$$

$$4 \quad 6ab + 3ab + 5a + 4a \\ = 9ab + 9a$$

$$5 \quad 3xy + 2xy - yx \\ = 4xy$$

$$6 \quad 3a^2b - 3ab^2 + 2a^2b \\ = 5a^2b - 3ab^2$$

$$7 \quad 2x^2y + 3x^2y^2 - x^2y + 3x^2y^2 \\ = x^2y + 6x^2y^2$$

$$8 \quad 3abc + 5bca - 2cba \\ = 6abc$$

$$9 \quad 12mn + 3m - 6mn - m \\ = 6mn + 2m$$

Simplify each expression by expanding the brackets and then collecting the like terms.

$$12 \quad 5a - 3(a + b) \\ = 5a - 3a - 3b \\ = 2a - 3b$$

$$13 \quad 4(2x - y) - 6x \\ = 8x - 4y - 6x \\ = 2x - 4y$$

$$14 \quad 8m - 5(2m - 3n) \\ = 8m - 10m + 15n \\ = -2m + 15n$$

$$18 \quad 5a(a + 2) - 3a(a + 1) \\ = 5a^2 + 10a - 3a^2 - 3a \\ = 2a^2 + 7a$$

$$19 \quad 5x(x - 2y) + 3x(2x - y) \\ = 5x^2 - 10xy + 6x^2 - 3xy \\ = 11x^2 - 13xy$$

$$20 \quad 2a + 3b - (a - b) \\ = 2a + 3b - a + b \\ = a + 4b$$

$$21 \quad x + 5y - (3x + 2y) \\ = x + 5y - 3x - 2y \\ = -2x + 3y$$

$$22 \quad 5x(2x + 1) - (x^2 + x) \\ = 10x^2 + 5x - x^2 - x \\ = 9x^2 + 4x$$

$$23 \quad 15(x - 2) + 4(3x - 3) \\ = 15x - 30 + 12x - 12 \\ = 27x - 42$$

27 The expression $a(a + 1) - 3(2a + 1)$ simplifies to:

A $a^2 - 7a - 3$

B $a^2 - 5a + 3$

$$= a^2 + a - 6a - 3 = a^2 - 5a - 3$$

C $a^2 - 5a - 3$

D $a^2 - 7a + 3$

28 The expression $3(m^2 - m) - 2(m^2 + 2m + 5)$ simplifies to:

A $5m^2 - 7m - 10$

B $m^2 - 7m - 10$

C $m^2 + m - 10$

D $m^2 - 7m + 10$

$$= 3m^2 - 3m - 2m^2 - 4m - 10 \\ = m^2 - 7m - 10$$