


Distribution (Dive Bomb 101)

Distribution implies:  $a(b + c) = ab + ac$ (everybody in brackets gets multiplied by a)

This process will use your knowledge of exponent laws and like terms

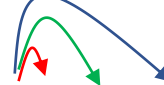
1) Expand the following

a) $3x(2x + 7)$



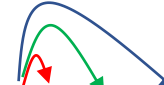
$$3x(2x + 7) = 6x^2 + 21x$$

b) $3x^2(x^2 - 6x - 5)$



$$3x^2(x^2 - 6x - 5) = 3x^4 - 18x^3 - 15x^2$$

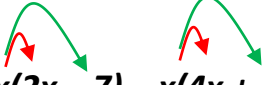
c) $-5x(3x^3 - 7x + 2)$



$$-5x(3x^3 - 7x + 2) = -15x^4 + 35x^2 - 10x$$

Here we will need to remove the brackets and combine like terms ... use the staking method

d) $6x(2x - 7) - x(4x + 1)$

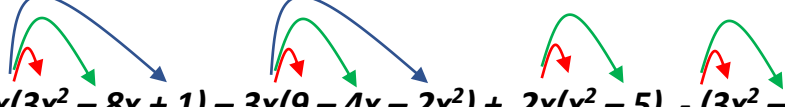


$$6x(2x - 7) - x(4x + 1) = 12x^2 - 42x$$

$$\underline{-4x^2 - x} \text{ like terms already lined up}$$

$$= 8x^2 - 43x$$

e) $7x(3x^2 - 8x + 1) - 3x(9 - 4x - 2x^2) + 2x(x^2 - 5) - (3x^2 - 19)$



$$7x(3x^2 - 8x + 1) - 3x(9 - 4x - 2x^2) + 2x(x^2 - 5) - (3x^2 - 19)$$

$$21x^3 - 56x^2 + 7x$$


$$6x^3 + 12x^2 - 27x$$

$$2x^3 \quad \quad -10x$$

$$\underline{\quad \quad -3x^2 \quad \quad + 19}$$

$$= 29x^3 - 47x^2 - 30x + 19$$

f) $3(2 + 4(x + 7))$



$$3(2 + 4(x + 7)) \rightarrow 3(2 + 4x + 28) \rightarrow 3(4x + 30)$$

$$= 12x + 90$$

ASSIGNMENT = WORKSHEET

Distribution and like terms too

Expand and simplify the following

a) $5x(2x + 3)$

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

c) $x^2(3x - 1)$

d) $x^3(x - 5)$

e) $-7x^2(3x^2 - 2x + 1)$

f) $-x(x - 2)$

g) $5x^2(3x^2 - 4)$

h) $3xy(x^2y + 2xy - 3xy^2)$

i) $-2x^2(ax^2 - x)$

j) $-x(7 - 2x + x^2)$

k) $-4xy(3x^2 - 9y^2)$

l) $-(7x - 9)$

m) $8x^2 - 9x^2 + 7x$

n) $-3x(2xy^7 - 1)$

o) $9x - 5(3x - 2)$

p) $-6xy(4xy - 6y^2)$

q) $8x(-9x^2 - 7x - 2)$

r) $11xyz(xyz - xy)$

2) Expand and combine

a) $5x^2(x + 7) - 10x(x - 8)$

b) $x(x - 9) - 2(x + 10)$

c) $12x - 6(3x - 2) + 2$

d) $3x^2(2x + 3) - (7x^2 - 4x)$

e) $3x(2x^2 - 6x - 1) - 5x(4x^2 - 10x + 2) - 6x(7x + 1)$

What did the girl mushroom say about the boy mushroom after their first date?

7	10	1	5	13	4	9	2	11	8	15	3	12	6	14
---	----	---	---	----	---	---	---	----	---	----	---	----	---	----

- 1) $5(2n^2 + n)$ 2) $3n(8n^2 - 2n)$ 3) $n^2(4n - 3)$
- 4) $-2n(4 + 5n^3)$ 5) $-6n^2(4n^2 - 9)$ 6) $4a(a^2 - 2a + 3)$
- 7) $-2a^2(9 - a - 4a^2)$ 8) $a^2b(a^2 - b^2)$ 9) $-3ab^2(a^3b^2 - 2a^2b)$
- 10) $2ab(a^2 + 4ab - 3b^2)$ 11) $x^2y(2x^2 - 4xy + y^2)$ 12) $-2xy^2(2x^4 - 5x^2y^2 - 3y^4)$
- 13) $4x^3y(-x^2y + 2xy - 5xy^2)$ 14) $-x^2y^3(7xy^3 - x^2y^2 + 3x^3y)$ 15) $3x^2y^2(2x^4y^2 - 3x^2y - 1)$

Answers

- | | | |
|----------------------|-------------------------------|--------------------------------------|
| (B) $-24n^4 - 54n$ | (M) $4a^3 - 8a^2 + 10$ | (N) $-4x^5y^2 + 10x^3y^4 + 6xy^6$ |
| (T) $24n^3 - 4n$ | (H) $-18a^2 + 2a^3 + 8a^4$ | (S) $2x^4y - 4x^2y^3 + x^2y^4$ |
| (R) $-24n^4 + 54n^2$ | (E) $2a^3b + 8a^2b^2 - 6ab^3$ | (E) $-4x^5y^2 + 8x^4y^2 - 20x^4y^3$ |
| (U) $4n^3 - 3n^2$ | (I) $2a^3b + 8ab^2 - 4ab$ | (U) $-4x^5y^2 + 10x^2y^4 - 20x^2y^3$ |
| (S) $10n^2 + 5n$ | (A) $a^4b - a^2b^3$ | (Y) $2x^4y - 4x^3y^2 + x^2y^3$ |
| (L) $24n^3 - 6n^2$ | (G) $4a^3 - 8a^2 + 12a$ | (F) $6x^6y^4 - 9x^4y^3 - 3x^2y^2$ |
| (O) $-8n - 6n^3$ | (W) $-18a^2 + 2a^3 + 6a^5$ | (T) $-7x^3y^6 + x^5y^4 - 3x^3y^4$ |
| (A) $-8n - 10n^4$ | (L) $-3a^4b^4 + 6a^3b^3$ | (I) $-7x^3y^6 + x^4y^5 - 3x^5y^4$ |