

Algebra

Add and subtract like terms

$3a$

a^2

$-7a$

$2a^2$

$-7a^2$

$8a$

$-6a$

$9a^2$

1. For each write down a sum of three of the given terms above that have a total of:

a) $5a$

b) $-10a$

c) $3a^2$

d) $-4a^2$

2. For each write down a difference between two of the given terms above with an answer of:

a) $8a^2$

b) $9a$

c) $9a^2$

d) $-15a$

3. Look at the four algebraic expressions below and then answer the questions that follow.

Expression A: $5x^3 - 12x^2 + 7x - 10$

Expression B: $-8x^3 - 12x + 9$

Expression C: $4x^3 + x^2 - 3x$

Expression D: $-10x^2 + x + 1$

- a) Calculate the difference between D and B.

- b) Find the sum of A, C and D.

- c) Subtract A from B.

- d) Subtract the difference between C and A from the sum of B and D.



Reminder

Only like terms can be added or subtracted. We cannot add or subtract unlike terms.

Algebra

Multiply and divide using the first two laws of exponents

Examples

1. $(2a^5b^4)(4a^2b^2c^3) = 8a^7b^6c^3$

2. $\frac{16x^3yz^6}{8x^2y^4z^3} = \frac{2xz^3}{y^3}$

1. Complete the exponential laws and memorise them.

$a^m \times a^n =$

$b^x + y =$

$a^m \div a^n =$

$b^x - y =$

2. Simplify.

a) $10x^5y^3z \times -5x^5y^6$

b) $-24p^8q^5 \div -3p^6q$

c) $(2mn)(-4m^2n^5)(-8m^5)$

d) $\frac{63d^7eg^4}{-7d^5e^5g^4}$

e) $\frac{-x^2y \times 6x^3y}{-2x^4y^4}$

f) $\frac{-36a^5b^2}{9a^2b \times -2ab^2}$

g) $7k^5m^9 \times 0km^3 \div -k^4m$

h) $12x^5y^4 \div (-24xy \times 0x^3y^2)$

3. Simplify the following expressions.

a) $-8x^3(7x^5 - 5x)$

b) $5a^3(12a + 3b - 8c)$

c) $\frac{33a^5b^2 - 55a^7b^8}{11a^4b}$

d) $\frac{42x^2y^4 - 28x^3y^7 + 14xy}{-2xy}$

e) $(-3p + 8q + 12)9$

f) $(-2st^2 + 31s^2t)(-10st)$

g) $(-81s^{20}t^{10} + 18s^{10}t^{20}) \div -9s^{10}t^{10}$

h) $\frac{-12p^4q^7 + 8pq + 4p^2q^3}{-4p^2q^3}$

4. Given:

$-5a^3z^2$

$2b^4x + 7c^5y^3$

$-ac^3 + 4b^2z + 5x^4z^5$

Write down:

a) the product of $-8b^7c^4$ and the binomial

b) the quotient of $35a^5z^3 - 5a^4z^2$ and the monomial

c) the product of the trinomial and the monomial.