

Expand and simplify the following expressions.

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

(b) $(x - 3)(x - 8) + (x - 4)(2x + 9)$

(c) $(4 - 3h)(10 - 9h)$

(d) $(4a - 3)(a + 2) - (3a - 5)(-a - 9)$

(e) $(2x + 3)(5x - 2) - 2(5x - 3)(x + 1)$

Factorise the following expressions.

(f) $3q^2 + 10q + 7$

(g) $18w^2 - w - 39$

(h) $35m^2n + 5mn - 30n$

(i) $\frac{4}{9}x^2 + x - 1$

(j) $3x^2 - \frac{11}{2}x - 5$

(k) Determine the integer values of n for which $n^2 - 18n + 45$ is a prime number.

Expand and simplify the following.

(l) $a(5b + c) - 2a(3c - b)$

(m) $(7m^2 + 2)(m - 4)$

(n) $(10x + y)(3x + 2y) - (5x - 4y)(-x - 6y)$

Factorise the following.

(o) $a^2 + 3ab - 4b^2$

(p) $2r^2t - 9rst + 10s^2t$

(q) $4x^2y^2z - 22xyz + 24z$

(r) Expand and simplify $(p - 2q)^2 - p(p - 4q)$. Hence, by substituting appropriate values of p and q , find the value of $5310^2 - 5330(5290)$.

(s) Factorise $13x^2 + 26xy + 13y^2 - 13$.

(t) Factorise the expression $x^3 + 3x - x^2 - 3$.

Hence, express $(x^2 - 3)^3 - (2 - x^2)^2 + 3(x^2 - 3)$ in the form $(x^4 + Ax^2 + B)(x^2 + C)$, where A , B and C are integers.