

Assignments for Algebraic Exercise 4

Question 1

Use a suitable identity to get each of the following products.

a) $(p - 11)(p + 11)$

b) $(2y + 5)(2y - 5)$

c) $(12a - 9)(12a + 9)$

d) $(2a - 1/2)(2a + 1/2)$

e) $(1.1m - 0.4)(1.1m + 0.4)$

f) $(a^2 + b^2)(-a^2 + b^2)$

g) $(6x - 7)(6x + 7)$

h) $(-a/2 + c/2)(-a/2 + c/2)$

i) $[(p/8) + (3q/4)][(p/8) + (3q/4)]$

j) $(3a + 9b)(3a - 9b)$

k) $2(a - 9)^2$

l) $5(xy - 3z)^2$

m) $(6x + 5y)^2$

n) $36[(3p/2) + (2q/3)]^2$

o) $(x - 0.5y)^2$

p) $(2xy - 5y)^2$

Question 2

Use the identity $(x + a)(x + b) = x^2 + (a + b)x + ab$ to find the following products.

(i) $(p + 10)(p + 11)$

(ii) $(4x + 9)(4x + 12)$

(iii) $(x - 5)(x - 1)$

(iv) $(9x - 5)(9x - 1)$

(v) $(2x + 5y)(2x + 3y)$

(vi) $(2a^2 + 9)(2a^2 + 5)$

Question 3

Simplify the following

(i) $(x^2 - y^2)^2 + 4x^2y^2$

(ii) $(p + q)^2 - (p - q)^2 + p^2q^2$

(iii) $(2m - 8n)^2 + (2m + 8n)^2$

(iv) $(4m + 5n)^2 + (5m + 4n)^2 + (4m + 5n)(4m - 5n)$

(v) $(.5p - 1.5q)^2 - (.5p - 1.5q)^2 + p^2q^2$

(vi) $(ab - bc)^2 + 2ab^2c$

(vii) $(m^2 - n^2m)^2 + 2m^3n^2$

Question 4

Using identities, evaluate.

a) 91^2

b) 89^2

c) 202^2

d) 999^2

e) 1.2^2

f) 397×403

g) 48×52

h) 5.1^2

(i) $61^2 - 59^2$

j) $11.1^2 - 9.9^2$

(k) 503×504

(l) 2.1×2.2

(m) 103×98

(n) 9.7×9.8

(o) $729^2 - 271^2$

Question 5

Find the value of x if $8x = 35^2 - 27^2$

Question 6

a) If $a - \frac{1}{a} = 4$, find the value of $a^2 + \frac{1}{a^2}$

b) If $p + q = 13$ and $pq = 22$, then $p^2 + q^2$