Exercise 9.2

1. Write the following in expanded form using suitable identities:

(*i*) $(-x-2y+6z)^2$

(*ii*) $(3a-7b-c)^2$

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

(*iv*) $(p+9q+2)^2$

(*v*) $\left(9x-y+\frac{1}{3}z\right)^2$

(*vi*) $\left(\frac{1}{4}a-\frac{1}{2}b+16\right)^2$

2. If $a+b+c=12$ and $ab+bc+ca=47$, then find the value of $a^2+b^2+c^2$.

3. If $x^2+y^2+z^2=40$ and $xy+yz+zx=12$, then find the value of $x+y+z$.

4. If $a^2+b^2+c^2=29$ and $ab+bc+ca=26$, then find the value of $a+b+c$.

5. If $x+y+z=6$ and $x^2+y^2+z^2=14$, then find the value of $xy+yz+zx$.

Answers

1. (*i*) $x^2 + 4y^2 + 36z^2 + 4xy - 24yz - 12xz$

(*ii*) $9a^2 + 49b^2 + c^2 - 42ab + 14bc - 6ac$

(*iii*) $4l^2 + m^2 + 64n^2 - 4lm - 16mn + 32\,ln$

(*iv*) $p^2 + 81q^2 + 4 + 18pq + 36q + 4p$

(*v*) $81x^2 + y^2 + \frac{1}{9}z^2 - 18xy - \frac{2}{3}yz + 6xz$

(*vi*) $\frac{1}{16}a^2 + \frac{1}{4}b^2 + 256 - \frac{1}{4}ab - 16b + 8a$

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