Algebraic Expressions and Identities Ex 6.4 Q19

Answer:

(i) To find the product, we will use distributive law as follows:

$$15y^2 (2 - 3x)$$
$$= 15y^2 \times 2 - 15y^2 \times 3x$$
$$= 30y^2 - 45xy^2$$

Substituting $x = -1$ and $y = 0.25$ in the result, we get:

$$30y^2 - 45xy^2$$
$$= 30(0.25)^2 - 45(-1)(0.25)^2$$
$$= 30 \times 0.0625 - \{45 \times (-1) \times 0.0625\}$$
$$= 30 \times 0.0625 - \{45 \times (-1) \times 0.0625\}$$
$$= 1.875 - (-2.8125)$$
$$= 1.875 + 2.8125$$
$$= 4.6875$$

(ii) To find the product, we will use distributive law as follows:

$$-3x(y^2 + z^2)$$
$$= -3x \times y^2 + (-3x) \times z^2$$
$$= -3xy^2 - 3xz^2$$

Substituting $x = -1$, $y = 0.25$ and $z = 0.05$ in the result, we get:

$$-3xy^2 - 3xz^2$$
$$= -3(-1)(0.25)^2 - 3(-1)(0.05)^2$$
$$= -3(-1)(0.0625) - 3(-1)(0.0025)$$
$$= 01875 + 0.0075$$
$$= 0.195$$

(iii) To find the product, we will use distributive law as follows:

$$z^2(x - y)$$
$$= z^2 \times x - z^2 \times y$$
$$= xz^2 - yz^2$$

Substituting $x = -1$, $y = 0.25$ and $z = 0.05$ in the result, we get:

$$xz^2 - yz^2$$
$$= (-1)(0.05)^2 - (0.25)(0.05)^2$$
$$= (-1)(0.0025) - (0.25)(0.0025)$$
$$= -0.0025 - 0.000625$$
$$= -0.003125$$

(iv) To find the product, we will use distributive law as follows:

$$xz(x^2 + y^2)$$
$$= xz \times x^2 + xz \times y^2$$
$$= x^3z + xy^2z$$

Substituting $x = -1$, $y = 0.25$ and $z = 0.05$ in the result, we get:

$$x^3z + xy^2z$$
$$= (-1)^3(0.05) + (-1)(0.25)^2(0.05)$$
$$= (-1)(0.05) + (-1)(0.0625)(0.05)$$
$$= -0.05 - 0.003125$$
$$= -0.053125$$

Algebraic Expressions and Identities Ex 6.4 Q20

Answer :

(i) To simplify, we will use distributive law as follows:

$$2x^2\left(x^3 - x\right) - 3x\left(x^4 + 2x\right) - 2\left(x^4 - 3x^2\right)$$
$$= 2x^5 - 2x^3 - 3x^5 - 6x^2 - 2x^4 + 6x^2$$
$$= 2x^5 - 3x^5 - 2x^4 - 2x^3 - 6x^2 + 6x^2$$
$$= -x^5 - 2x^4 - 2x^3$$

(ii) To simplify, we will use distributive law as follows:

$$x^3 y\left(x^2 - 2x\right) + 2xy\left(x^3 - x^4\right)$$
$$= x^5 y - 2x^4 y + 2x^4 y - 2x^5 y$$
$$= x^5 y - 2x^5 y - 2x^4 y + 2x^4 y$$
$$= -x^5 y$$

(iii) To simplify, we will use distributive law as follows:

$$3a^2 + 2(a + 2) - 3a(2a + 1)$$
$$= 3a^2 + 2a + 4 - 6a^2 - 3a$$
$$= 3a^2 - 6a^2 + 2a - 3a + 4$$
$$= -3a^2 - a + 4$$

********** END *********