EXERCISE 8.3

Divide:

1. $x + 2x^2 + 3x^4 – x^5$ by $2x$

Solution:

We have,

$(x + 2x^2 + 3x^4 – x^5) / 2x$

$x/2x + 2x^2/2x + 3x^4/2x – x^5/2x$

By using the formula $a^n / a^m = a^{n-m}$

$1/2\ x^{1-1} + x^{2-1} + 3/2\ x^{4-1} – 1/2\ x^{5-1}$

$1/2 + x + 3/2\ x^3 – 1/2\ x^4$

2. $y^4 – 3y^3 + 1/2y^2$ by $3y$

Solution:

We have,

$(y^4 – 3y^3 + 1/2y^2)/ 3y$

$y^4/3y – 3y^3/3y + (½)y^2/3y$

By using the formula $a^n / a^m = a^{n-m}$

$1/3\ y^{4-1} – y^{3-1} + 1/6\ y^{2-1}$

$1/3y^3 – y^2 + 1/6y$

3. $-4a^3 + 4a^2 + a$ by $2a$

Solution:

We have,

$(-4a^3 + 4a^2 + a) / 2a$

$-4a^3/2a + 4a^2/2a + a/2a$

By using the formula $a^n / a^m = a^{n-m}$

$-2a^{3-1} + 2a^{2-1} + 1/2\ a^{1-1}$

$-2a^2 + 2a + ½$

4. $–x^6 + 2x^4 + 4x^3 + 2x^2$ by $\sqrt{2}x^2$

Solution:

We have,

$(–x^6 + 2x^4 + 4x^3 + 2x^2) / \sqrt{2}x^2$

$-x^6/\sqrt{2}x^2 + 2x^4/\sqrt{2}x^2 + 4x^3/\sqrt{2}x^2 + 2x^2/\sqrt{2}x^2$

By using the formula $a^n / a^m = a^{n-m}$

$-1/\sqrt{2}\ x^{6-2} + 2/\sqrt{2}\ x^{4-2} + 4/\sqrt{2}\ x^{3-2} + 2/\sqrt{2}\ x^{2-2}$

$-1/\sqrt{2}\ x^4 + \sqrt{2}x^2 + 2\sqrt{2}x + \sqrt{2}$

5. $-4a^3 + 4a^2 + a$ by $2a$

Solution:

We have,

$(-4a^3 + 4a^2 + a) / 2a$

$-4a^3/2a + 4a^2/2a + a/2a$

By using the formula $a^n / a^m = a^{n-m}$

$-2a^{3-1} + 2a^{2-1} + 1/2a^{1-1}$

$-2a^2 + 2a + ½$

6. $\sqrt{3}a^4 + 2\sqrt{3}a^3 + 3a^2 – 6a$ by $3a$

Solution:

We have,

$(\sqrt{3}a^4 + 2\sqrt{3}a^3 + 3a^2 – 6a) / 3a$

$\sqrt{3}a^4/3a + 2\sqrt{3}a^3/3a + 3a^2/3a – 6a/3a$

By using the formula $a^n / a^m = a^{n-m}$

$\sqrt{3}/3\ a^{4-1} + 2\sqrt{3}/3\ a^{3-1} + a^{2-1} – 2a^{1-1}$

$1/\sqrt{3}\ a^3 + 2/\sqrt{3}\ a^2 + a – 2$