classmate
Date
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Tender Heart High School, Sec.-33B chd.
Class : VIII
Teacher: Deepti
Subject: Mathematics
Topic: Chapter-12: Fundamental concept of Algebra

In this week, we will multiply and division of two given expressions.

$$(x+a) \times (x+b)$$

$$= x \times x + x \times b + a \times x + a \times b$$

$$= x^2 + ax + bx + ab$$

$$= x^2 + (a+b)x + ab$$

Multiply each term of the first expression with the terms of second expression.

Division of polynomials:

- Division of a monomial by a monomial:
  Quotient of two monomials = (Quotient of their numerical coefficients) × (Quotient of their variable parts)

- Division of a polynomial by a polynomial:
  - Arrange the terms in descending order of their degrees
  - Divide the first term of dividend by divisor
  - Multiply all the terms of the divisor by the first term of the quotient & sub. the result
  - Consider the remainder as new dividend
  - Repeat the process.

Now we will do the questions of exercise 12-C and 12-D

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Exercise -12C

Soln 4 (i) $(4x^2+3x-5)$ by $(2x+3)$

$= (4x^2+3x-5) \times (2x+3)$

$= 4x^2 \times 2x + 4x^2 \times 3 + 3x \times 2x + 3x \times 3 - 5 \times 2x - 5 \times 3$

$= 8x^3 + 12x^2 + 6x^2 + 9x - 10x - 15$

$= 8x^3 + 18x^2 - x - 15$

(ii) $(3 - 2x + 5x^2) \times (5x - 4)$

$= 3 \times 5x + 3 \times -4 - 2x \times 5x - 2x \times -4 + 5x^2 \times 5x + 5x^2 \times -4$

$= 15x - 12 - 10x^2 + 8x + 25x^3 - 20x^2$

$= 25x^3 - 20x^2 - 10x^2 + 15x + 8x - 12$

$= 25x^3 - 30x^2 + 23x - 12$

(iii) $(x^2 - 5x + 3)$ by $(2x + 9)$

$= x^2 \times 2x + x^2 \times 9 - 5x \times 2x - 5x \times 9 + 3 \times 2x + 3 \times 9$

$= 2x^3 + 9x^2 - 10x^2 - 45x + 6x + 27$

$= 2x^3 - x^2 - 39x + 27$

Exercise -12D

Ans-4 Divide

(i) $12x^2 + 11x + 2$ by $(4x+1)$

$$
\begin{array}{r|l}
 & 3x + 2 \\
\hline
4x+1 & 12x^2 + 11x + 2 \\
 & -12x^2 \pm 3x \\
\hline
 & 8x + 2 \\
 & -8x \pm 2 \\
\hline
 & 0 \times 0
\end{array}
$$

Ans = $3x + 2$

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(ii) $6x^2 + x - 15$ by $2x - 3$

$$
\begin{array}{r}
3x + 5 \\
2x - 3 \overline{)\ 6x^2 + x - 15} \\
-(6x^2 \mp 9x) \\
\hline
10x - 15 \\
-(10x \mp 15) \\
\hline
0
\end{array}
$$

Ans $= 3x + 5$

(iii) $(6x^3 + x^2 - 26x - 21)$ by $(3x - 7)$

$$
\begin{array}{r}
2x^2 + 5x + 3 \\
3x - 7 \overline{)\ 6x^3 + x^2 - 26x - 21} \\
-(6x^3 - 14x^2) \\
\hline
15x^2 - 26x \\
-(15x^2 - 35x) \\
\hline
9x - 21 \\
9x - 21 \\
\hline
0
\end{array}
$$

Ans $= 2x^2 + 5x + 3$