

Dividing Polynomials Exit Quiz

Divide the following polynomials.

1. $3a^3 + 6a^2 - 12a + 15b$ by 3

2. $6x^3 + 4x^2 - 12x$ by $2x$

3. $8x^3 - 14x^2 - 5x - 1$ by $2x - 1$

4. $4x^3 + 5x - 6$ by $2x - 3$

5. $3x^3 + 11x^2 - 5x$ by $x + 4$

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Answer:

Divide the following polynomials.

1. $3a^3 + 6a^2 - 12a + 15$ by 3

Solution:

$$\begin{array}{r} 3a^3 + 6a^2 - 12a + 15 \\ \underline{ 3} \\ = a^3 + 2a^2 - 4a + 5 \end{array}$$

2. $6x^3 + 4x^2 - 12x$ by $2x$

Solution:

$$\begin{array}{r} 6x^3 + 4x^2 - 12x \\ \underline{ 2x} \\ = 3x^2 + 2x - 4 \end{array}$$

3. $8x^3 - 14x^2 - 5x - 1$ by $2x - 1$

Solution:

$$\begin{array}{r} \overline{4x^2 - 5x - 5} \\ 2x-1 \overline{) 8x^3 - 14x^2 - 5x - 1} \\ \underline{-(8x^3 - 4x^2)} \\ \overline{-10x^2 - 5x} \\ \underline{-(-10x^2 + 5x)} \\ \phantom{\overline{-10x^2 - 5x}} -10x - 1 \\ \underline{-(-10x + 5)} \\ \phantom{\overline{-10x^2 - 5x}} -6 \end{array}$$

$$= 4x^2 - 5x - 5 - \frac{6}{2x-1}$$

4. $4x^3 + 5x - 6$ by $2x - 3$

Solution:

$$\begin{array}{r} \overline{2x^2 + 3x + 7} \\ 2x-3 \overline{) 4x^3 } \\ \underline{-(4x^3 - 6x^2)} \\ \overline{6x^2 + 5x} \\ \underline{-(6x^2 - 9x)} \\ \phantom{\overline{6x^2 + 5x}} 14x - 6 \\ \underline{-(14x - 21)} \\ \phantom{\overline{6x^2 + 5x}} 15 \end{array}$$

$$= 2x^2 + 3x + 7 + \frac{15}{2x-3}$$

5. $3x^3 + 11x^2 - 5x$ by $x + 4$

Solution:

x^3	x^2	x	c	\mid	-4
3	11	-5	0	$\underline{}$	$$
\downarrow	$\underline{-12}$	$ 4$	$ 4$	$$	$$
3	-1	-1	4	$$	$$

$$= 3x^2 - x - 1 + \frac{4}{x+4}$$