

The Weekly Rigor

No. 335

“A mathematician is a machine for turning coffee into theorems.”

November 21, 2020

10 Problems in Dividing a Polynomial by a Monomial (Part 2)

7. $\frac{16ab^3x^3 - 20b^2x^5z}{4b^2x^3}$.

8. $\frac{8a^4 - 16a^3b + 12a^2c^5}{4a^2}$.

9. $\frac{18a^5x^6 - 27a^6x^8 - 9a^3x^6}{9a^3x^6}$.

$$10. \frac{12a^3b - 18a^2b^3 + 6a^2b}{6a^{-2}b}$$

ANSWERS

1. $2a^2 - 3b^3$	2. $2a^3 - 3ac^4$
3. $3b^2 - 5c^2$	4. $2ac - 4a^4$
5. $1 - 5ab^2c^3$	6. $2a^n - 4a^{2n}$
7. $4ab - 5x^2z$	8. $2a^2 - 4ab + 3c^5$
9. $2a^2 - 3a^3x^2 - 1$	10. $2a^5 - 3a^4b^2 + a^4$

SELECTED SOLUTIONS

$$1. \begin{array}{r} 2a^2 - 3b^3 \\ \underline{3ab \mid 6a^3b - 9ab^4} \\ 6a^3b \\ -9ab^4 \\ \underline{-9ab^4} \\ 0 \end{array}$$

$$\text{Check: } 3ab(2a^2 - 3b^3) = 6a^3b - 9ab^4. \checkmark$$

$$8. \begin{array}{r} 2a^2 - 4ab + 3c^5 \\ \underline{4a^2 \mid 8a^4 - 16a^3b + 12a^2c^5} \\ 8a^4 \\ -16a^3b \\ \underline{-16a^3b} \\ 12a^2c^5 \\ \underline{12a^2c^5} \\ 0 \end{array}$$

$$\text{Check: } 4a^2(2a^2 - 4ab + 3c^5) = 8a^4 - 16a^3b + 12a^2c^5. \checkmark$$

“Only he who never plays, never loses.”