

# The Weekly Rigor

No. 310

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

May 30, 2020

## 30 Problems in Factoring by Grouping (Part 1)

### PROBLEMS

For each of the following expressions, factor by grouping.

1.  $ac + bc + ad + bd.$

2.  $ac - bc + ad - bd.$

3.  $ac - bc - ad + bd.$

4.  $ab + ay + bx + xy.$

5.  $ax + bx - ay - by.$

6.  $ab + b - 2a - 2.$

7.  $ac - 2bc - 3ad + 6bd.$

8.  $a^2c^2 - b^2c^2 + a^2d^2 - b^2d^2.$

9.  $a^n x^n - b^n x^n + a^n y^n - b^n y^n.$

10.  $ax + ab + ac + x^2 + bx + cx.$

11.  $x^3 - 2x^2 + 5x - 10.$

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

13.  $x^3 - x^2 + 2x - 2.$

14.  $x^3 + 6x^2 - 2x - 12.$

15.  $3x^3 - 2x^2 - 6x + 4.$

16.  $x^3 - x^2 - 5x + 5.$

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“Only he who never plays, never loses.”

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