

## GCF, GROUPING, &amp; DIAMOND PUZZLES

**FACTOR USING GCF.**

1)  $-14x^3 + 56 - 7y$

2)  $-14y^3x - 6y^4 + 20y^3$

3)  $14x^2 + 21x^6 + 21xy^3$

4)  $-15u^5v^2 + 30u^2 + 40$

5)  $8xy^3 - 16xy^2 + 16xy$

6)  $2x^4y^7 + 3x^4y^2 + 4xy^2$

7)  $-40xy - 40xy^2 - 32x^4y^2$

8)  $7u^4v^3 - 14u^5v - 7u^4v$

**FACTOR USING GROUPING. (BE SURE TO CHECK FOR GCF FIRST)**

9)  $5k^3 + 30k^2 - 6k - 36$

10)  $x^3 - 2x^2 - 5x + 10$

11)  $49x^3 + 7x^2 - 14x - 2$

12)  $7x^3 - 14x^2 - 5x + 10$

13)  $28k^3 + 8k^2 - 21k - 6$

14)  $10p^3 - 5p^2 + 4p - 2$

15)  $5x^3 - 3x^2 - 40x + 24$

16)  $5n^3 - 40n^2 + 3n - 24$

17)  $105m^2w + 126m^2k - 175nw - 210nk$

18)  $5mn - 5m + 4n - 4$

19)  $40mw - 64mk - 15nw + 24nk$

# Diamond Math Problems

Name: \_\_\_\_\_ Date: \_\_\_\_\_



Complete the diamond problems. The top cell contains the *product* of the numbers in the left and right cells, while the bottom cell contains the *sum*.

- |      |   |      |  |      |   |      |   |
|------|---|------|--|------|---|------|---|
| (1)  | $\begin{array}{c} \diagup \quad \diagdown \\ +8 \quad -3 \\ \diagdown \quad \diagup \end{array}$  | (2)  | $\begin{array}{c} \diagup \quad \diagdown \\ +7 \quad -1 \\ \diagdown \quad \diagup \end{array}$ | (3)  | $\begin{array}{c} \diagup \quad \diagdown \\ +8 \quad -6 \\ \diagdown \quad \diagup \end{array}$  | (4)  | $\begin{array}{c} \diagup \quad \diagdown \\ -1 \quad +10 \\ \diagdown \quad \diagup \end{array}$ |
| (5)  | $\begin{array}{c} \diagup \quad \diagdown \\ -5 \quad +10 \\ \diagdown \quad \diagup \end{array}$ | (6)  | $\begin{array}{c} \diagup \quad \diagdown \\ +5 \quad +2 \\ \diagdown \quad \diagup \end{array}$ | (7)  | $\begin{array}{c} \diagup \quad \diagdown \\ +10 \quad -9 \\ \diagdown \quad \diagup \end{array}$ | (8)  | $\begin{array}{c} \diagup \quad \diagdown \\ -1 \quad +5 \\ \diagdown \quad \diagup \end{array}$  |
| (9)  | $\begin{array}{c} \diagup \quad \diagdown \\ +8 \quad +6 \\ \diagdown \quad \diagup \end{array}$  | (10) | $\begin{array}{c} \diagup \quad \diagdown \\ -48 \\ -6 \quad \diagup \end{array}$                | (11) | $\begin{array}{c} \diagup \quad \diagdown \\ -35 \\ \diagdown \quad -7 \end{array}$               | (12) | $\begin{array}{c} \diagup \quad \diagdown \\ \diagdown \quad \diagup \\ -1 \\ 5 \end{array}$      |
| (13) | $\begin{array}{c} \diagup \quad \diagdown \\ +4 \quad -3 \\ \diagdown \quad \diagup \end{array}$  | (14) | $\begin{array}{c} \diagup \quad \diagdown \\ 9 \\ +1 \quad \diagup \end{array}$                  | (15) | $\begin{array}{c} \diagup \quad \diagdown \\ 8 \\ +8 \quad \diagup \end{array}$                   | (16) | $\begin{array}{c} \diagup \quad \diagdown \\ 90 \\ \diagdown \quad \diagup \\ +9 \end{array}$     |
| (17) | $\begin{array}{c} \diagup \quad \diagdown \\ -28 \\ \diagdown \quad -4 \end{array}$               | (18) | $\begin{array}{c} \diagup \quad \diagdown \\ -42 \\ \diagdown \quad -7 \end{array}$              | (19) | $\begin{array}{c} \diagup \quad \diagdown \\ \diagdown \quad \diagup \\ -10 \\ -4 \end{array}$    | (20) | $\begin{array}{c} \diagup \quad \diagdown \\ -18 \\ \diagdown \quad \diagup \\ 7 \end{array}$     |
| (21) | $\begin{array}{c} \diagup \quad \diagdown \\ 20 \\ \diagdown \quad \diagup \\ 9 \end{array}$      | (22) | $\begin{array}{c} \diagup \quad \diagdown \\ -36 \\ \diagdown \quad \diagup \\ 5 \end{array}$    | (23) | $\begin{array}{c} \diagup \quad \diagdown \\ 28 \\ \diagdown \quad \diagup \\ 11 \end{array}$     | (24) | $\begin{array}{c} \diagup \quad \diagdown \\ 63 \\ \diagdown \quad \diagup \\ 16 \end{array}$     |
| (25) | $\begin{array}{c} \diagup \quad \diagdown \\ 40 \\ \diagdown \quad \diagup \\ 14 \end{array}$     | (26) | $\begin{array}{c} \diagup \quad \diagdown \\ -45 \\ \diagdown \quad \diagup \\ 4 \end{array}$    | (27) | $\begin{array}{c} \diagup \quad \diagdown \\ 15 \\ \diagdown \quad \diagup \\ 8 \end{array}$      | (28) | $\begin{array}{c} \diagup \quad \diagdown \\ -81 \\ \diagdown \quad \diagup \\ 0 \end{array}$     |