

NAME: _____ PERIOD: _____ DATE: _____

Homework Problem Set

Use Juan's method to factor each equation.

<p>1. $y = x^2 + 14x + 24$</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> $ac = \underline{24}$ factors of ac: $\begin{array}{cc} 1 & 24 \\ 2 & 12 \\ 3 & 8 \\ 4 & 6 \end{array}$ </div> <p>$y = (x+2)(x+12)$</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto; background-color: #fff9c4;"> $y = (x+2)(x+12)$ </div>	<p>2. $y = 3x^2 + 11x + 6$</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> $ac = \underline{18}$ factors of ac: $\begin{array}{cc} 1 & 18 \\ 2 & 9 \\ 3 & 6 \end{array}$ </div> <p>$y = \underline{3x^2 + 2x} + \underline{9x + 6}$ $\underline{x(3x+2)} + \underline{3(3x+2)}$</p> <p>$y = (x+3)(3x+2)$</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto; background-color: #fff9c4;"> $y = (x+3)(3x+2)$ </div>
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<p>3. $y = 2x^2 + 11x + 14$</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> $ac = \underline{28}$ factors of ac: $\begin{array}{cc} 1 & 28 \\ 2 & 14 \\ 4 & 7 \end{array}$ </div> <p>$y = \underline{2x^2 + 4x} + \underline{7x + 14}$ $y = \underline{2x(x+2)} + \underline{7(x+2)}$</p> <p>$y = (2x+7)(x+2)$</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto; background-color: #fff9c4;"> $y = (2x+7)(x+2)$ </div>	<p>4. $y = 5x^2 + 17x + 6$</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> $ac = \underline{30}$ factors of ac: $\begin{array}{cc} 1 & 30 \\ 2 & 15 \\ 3 & 10 \\ 5 & 6 \end{array}$ </div> <p>$y = \underline{5x^2 + 2x} + \underline{15x + 6}$ $y = \underline{x(5x+2)} + \underline{3(5x+2)}$</p> <p>$y = (x+3)(5x+2)$</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto; background-color: #fff9c4;"> $y = (x+3)(5x+2)$ </div>
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Factor each equation in Problems 5–10. Use any method.

5. $y = x^2 + 8x + 7$

$$y = (x+7)(x+1)$$

6. $y = x^2 - 11x + 10$

$$y = (x-10)(x-1)$$

7. $y = x^2 + 3x - 54$

$$y = (x+9)(x-6)$$

8. $y = 10x^2 + 13x - 30$

$$\begin{array}{r} \cancel{-30} \\ -12 \quad \cancel{25} \\ 13 \end{array}$$

$$\begin{aligned} y &= \underline{10x^2 - 12x} + \underline{25x - 30} \\ y &= \underline{2x(5x-6)} + \underline{5x(5x-6)} \\ y &= (2x+5)(5x-6) \end{aligned}$$

$$y = (2x+5)(5x-6)$$

9. $y = 12x^2 - 43x + 35$

$$y = \underline{12x^2 - 15x} - \underline{28x + 35}$$

$$\begin{array}{r} \cancel{420} \\ -15 \quad \cancel{-28} \\ -43 \end{array}$$

$$\underline{3x(4x-5)} - \underline{7(4x-5)}$$

$$y = (3x-7)(4x-5)$$

$$\begin{array}{r} 420 \\ 10 \quad 42 \\ 12 \quad 35 \\ \hline -15 \quad -28 \end{array}$$

$$y = (3x-7)(4x-5)$$

10. $y = 14x^2 + 19x - 3$

$$y = \underline{14x^2 + 21x} - \underline{2x - 3}$$

$$\begin{array}{r} \cancel{-42} \\ 21 \quad \cancel{-1} \\ 19 \end{array}$$

$$\underline{7x(2x+3)} - \underline{1(2x+3)}$$

$$y = (7x-1)(2x+3)$$

$$y = (7x-1)(2x+3)$$

Factor each equation in Problems 11–16.

11. $y = 3x^2 + 16x - 35$

$$y = (x+7)(3x-5)$$

12. $y = 10x^2 + 71x - 72$

$$y = (x+8)(10x-9)$$

13. $y = 4x^2 + 11x - 20$

$$y = (x+4)(4x-5)$$

14. $y = 3x^2 - 28x + 9$

$$y = (x-9)(3x-1)$$

15. $y = 7x^2 + 6x - 1$

$$y = (x+1)(7x-1)$$

16. $y = 3x^2 - 10x + 7$

$$y = (3x-7)(x-1)$$

