

PROBLEM SET – Multiplying Binomials, Standard Edition, Mr. Peralta, Class 622 and 623

TASK 1: Solve each problem mentally. Record your answers in your notebook. The problems are “minimally different” so you can see how subtle changes in the problems result in subtle changes in the answers.

Forwards Problem Set	Backwards Problem Set
1. $(x - 8)(x + 6)$	1. $x^2 + 12x + 20$
2. $(x + 8)(x - 6)$	2. $x^2 - 12x + 20$
3. $(x + 4)(x - 6)$	3. $x^2 + 8x - 20$
4. $(x - 4)(x + 6)$	4. $x^2 - 8x - 20$
5. $(x - 4)(x - 6)$	5. $x^2 - 9x + 20$
6. $(x + 4)(x + 6)$	6. $x^2 + 9x + 20$
7. $(x + 8)(x + 12)$	7. $x^2 - x - 20$
8. $(x - 8)(x + 12)$	8. $x^2 + x - 20$
9. $(x + 8)(x - 12)$	9. $x^2 + x - 72$
10. $(x - 8)(x - 12)$	10. $x^2 - x - 72$

TASK 2: Solve each problem mentally. The problems are randomly assorted.

1. $7(x - 5)(x + 9)$	1. $x^4 + 5x^2 - 6$
2. $(x^2 + 9)(x^2 - 10)$	2. $x^2 - 14x + 24$
3. $(x^4 - 9)(x^4 + 15)$	3. $x^2 - 3x - 10$

TASK 3: Respond to the following

<p>1. Let $(x + a)(x + b) = x^2 + cx + d$</p> <p>a. Suppose $a > 0$ and $b > 0$. Then what kind of numbers (positive or negative) are c and d? Explain how you know.</p> <p>b. If $a < 0$ and $b < 0$, then what kind of numbers are c and d? Explain how you know.</p> <p>c. If $a > 0$ and $b < 0$ and $a > b$, then what kind of numbers are c and d? Explain how you know.</p> <p>d. If $a > 0$ and $b < 0$ and $a < b$, then what kind of numbers are c and d? Explain how you know.</p>
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Challenge Questions

- Find two numbers x and y such that xy , $\frac{x}{y}$, and $x - y$ are equal
- Find two numbers x and y such that xy , $\frac{x}{y}$, and $2(x - y)$ are equal
- Find two numbers x and y such that xy , $\frac{2x}{y}$, and $3(x - y)$ are equal

Challenge Questions

1. Find two numbers x and y such that xy , $\frac{x}{y}$, and $x - y$ are equal. $x = -\frac{1}{2}$ and $y = -1$
2. Find two numbers x and y such that xy , $\frac{x}{y}$, and $2(x - y)$. $x = 2$, $y = 1$
3. $x = \frac{3\sqrt{2}}{3-\sqrt{2}}$, $y = \sqrt{2}$