

Welcome

- Please place cell phones in holder
- Go to board to complete warm-up

Factoring by Guess and Check Method

Factor  $9x^2 + 41x - 20$

General Steps	Examples
1. Set up two empty sets of parenthesis below the polynomial.	$9x^2 + 41x - 20$
2. The first numbers must multiply together to equal the first term, $ax^2$ .	$\begin{array}{cc} 1x & 9x \\ 3x & 3x \end{array}$
3. The second numbers must multiply together to equal the last term $c$ .	$\begin{array}{cc} 1 & 20 \\ 2 & 10 \\ 4 & 5 \end{array}$
4. Multiply the outside terms and then the inside terms. When those terms are added together, they should equal the middle term, $b$ .	$(1x \quad 4)(9x \quad 5)$ $\begin{array}{r} \underline{36x} \\ -5x \\ \hline 31x \end{array}$
5. Check your answer by multiplying the two binomials together.	$(1x + 5)(9x - 4)$ $\begin{array}{r} \underline{45x} \\ -4x \\ \hline 41x \end{array}$

Practice:

1.  $10x^2 + 27x + 14$

$$\begin{array}{cc} 1x & 10x & 1 & 14 \\ 2x & 5x & 2 & 7 \end{array}$$

$$(x + 2)(10x + 7)$$

$$\begin{array}{r} \underline{20x} \\ 7x \\ \hline \end{array}$$

4.  $9x^2 + 58x + 24$

$$\begin{array}{cc} 1x & 9x & 1 & 24 \\ 3x & 3x & 2 & 12 \\ & & 3 & 8 \\ & & 4 & 6 \end{array}$$

$$(x + 6)(9x + 4)$$

$$\begin{array}{r} \underline{54x} \\ 4x \\ \hline \end{array}$$

2.  $6x^2 - 11x - 30$

$$\begin{array}{cc} 1x & 6x \\ 2x & 3x \end{array}$$

$$(2x + 3)(3x - 10)$$

$$\begin{array}{r} \underline{9x} \\ -20x \\ \hline \end{array}$$

5.  $10x^2 + 61x + 6$

$$\begin{array}{cc} 1x & 10x & 1 & 6 \\ 2x & 5x & 2 & 3 \end{array}$$

$$(x + 6)(10x + 1)$$

$$\begin{array}{r} \underline{60x} \\ 1x \\ \hline \end{array}$$

3.  $40x^2 + 188x + 168$

$$\begin{array}{cc} 1x & 10x & 1 & 42 \\ 2x & 5x & 2 & 21 \\ & & 3 & 14 \\ & & 6 & 7 \end{array}$$

$$4(10x^2 + 47x + 42)$$

$$4(2x + 7)(5x + 6)$$

$$\begin{array}{r} \underline{35x} \\ 12x \\ \hline 47x \end{array}$$

6.  $4x^2 + 31xy - 45y^2$

$$\begin{array}{ccc} 1x & 4x & 1y & 45y \\ 2x & 2x & 3y & 15y \\ & & 5y & 9y \end{array}$$

$$(x + 9y)(4x - 5y)$$

$$\begin{array}{r} \underline{36xy} \\ -5xy \\ \hline 31xy \end{array}$$

mild

$$3x^2 + 10x + 7$$

$1x \ 3x$                        $1 \ 7$

medium

$$6x^2 + 44x + 14$$

$1x \ 6x$                        $1 \ 14$   
 $2x \ 3x$                        $2 \ 7$

$$\textcircled{1} \quad 5x^2 - 43x + 24$$

$$\textcircled{2} \quad 7x^2 - 23x + 18$$

$$\textcircled{3} \quad 35x^2 - 230x - 105$$

$$\textcircled{4} \quad 2x^2 + 13x + 15$$

⑥  $4x^2 + x - 18$



$$\textcircled{7} \quad 48x^2 + 60x - 150$$

$$\textcircled{8} \quad 45x^2 - 230x - 240$$

$$\textcircled{9} \quad 8x^2 + 10x + 3$$

$$\textcircled{10} \quad 9x^2 + 42x + 40$$