

NAME:

DATE:

Key

A2.Q2.BERMELLEMO

(DAY EP5)

EXPRESSIONS

REVIEW MASTERY PRACTICE

Factor each polynomial. BOX YOUR ANSWER

1. $2x^2 - 5x - 3$

F	M	L
$2x^2$	$-5x$	-3
Different signs		
$2x \cdot x$		$1 \cdot 3$
		$3 \cdot 1$

$$(2x + 1)(x - 3)$$

$$\begin{array}{r} +1x \\ -6x \\ \hline -5x \end{array} \text{ yes}$$

$$(2x - 1)(x + 3)$$

$$\begin{array}{r} -1x \\ +6x \\ \hline +5x \end{array} \text{ NO}$$

$$(2x + 3)(x - 1)$$

$$\begin{array}{r} 3x \\ -6x \\ \hline -3x \end{array} \text{ NO}$$

$$(2x - 3)(x + 1)$$

$$\begin{array}{r} -3x \\ +2x \\ \hline -1x \end{array} \text{ NO}$$

2. $5x^2 - 7x + 2$

F	M	L
$5x^2$	$-7x$	$+2$
same signs		
$5x \cdot x$		$1 \cdot 2$
		$2 \cdot 1$

$$(5x + 1)(x + 2)$$

$$\begin{array}{r} 1x \\ +10x \\ \hline 11x \end{array} \text{ NO}$$

$$(5x - 1)(x - 2)$$

$$\begin{array}{r} -1x \\ -10x \\ \hline -11x \end{array} \text{ NO}$$

$$(5x + 2)(x + 1)$$

$$\begin{array}{r} +2x \\ +5x \\ \hline 7x \end{array} \text{ NO}$$

$$(5x - 2)(x - 1)$$

$$\begin{array}{r} -2x \\ -5x \\ \hline -7x \end{array} \text{ yes}$$

Different
signs

↓

3. $3x^2 + 2x - 8$

$3x \cdot x$ $-1+8$

$+1-8$

$-8+1$

$+8-1$

$-2+4$

$+2-4$

$-4+2$

$+4-2$

} Try
these
first

$(3x-2)(x+4)$

$-2x$
 $+12x$ $+10x$ NO

$(3x+2)(x-4)$

$+2x$
 $-12x$ $-10x$ NO

$(3x-4)(x+2)$

$-4x$
 $+6x$ $+2x$ YES

$(3x+4)(x-2)$

$+4x$
 $-6x$ $-2x$ NO

different
signs

↓

4. $5x^2 + 13x - 6$

$5x \cdot x$ $+1-6$

$-1+6$

$+6-1$

$-6+1$

$+2-3$

$-2+3$

$+3-2$

$-3+2$

} Try
these
first

$(5x+2)(x-3)$

$+2x$
 $-15x$ $-13x$ NO

$(5x-2)(x+3)$

$-2x$
 $+15x$ $+13x$ YES

$(5x+3)(x-2)$

$+3x$
 $-10x$ $-7x$ NO

$(5x-3)(x+2)$

$-3x$
 $+10x$ $+7x$ NO

Diff.
signs

$$\begin{array}{r} 5. \ x^2 - x - 12 \\ \hline x \cdot x \quad +1-12 \\ +2-6 \\ +3-4 \end{array}$$

$$\begin{array}{r} (x+1)(x-12) \\ +1x \\ -12x \\ \hline -11x \quad \text{NO} \end{array}$$

$$\begin{array}{r} (x+2)(x-6) \\ +2x \\ -6x \\ \hline -4x \quad \text{NO} \end{array}$$

$$\boxed{\begin{array}{r} (x+3)(x-4) \\ +3x \\ -4x \\ \hline -1x \quad \text{YES} \end{array}}$$

Diff.
signs

$$\begin{array}{r} 6. \ x^2 - 7x - 8 \\ \hline x \cdot x \quad +1-8 \\ +2-4 \end{array}$$

$$\boxed{\begin{array}{r} (x+1)(x-8) \\ +1x \\ -8x \\ \hline -7x \quad \text{YES} \end{array}}$$

$$\begin{array}{r} (x+2)(x-4) \\ +2x \\ -4x \\ \hline -2x \quad \text{NO} \end{array}$$

Diff.
signs

$$\begin{array}{r} 7. \ x^2 + 2x - 8 \\ \hline x \cdot x \quad -1+8 \\ -2+4 \end{array}$$

$$\begin{array}{r} (x-1)(x+8) \\ -1x \\ +8x \\ \hline +7x \quad \text{NO} \end{array}$$

$$\boxed{\begin{array}{r} (x-2)(x+4) \\ -2x \\ +4x \\ \hline +2x \quad \text{YES} \end{array}}$$

8. $x^2 - 100$

$x \cdot x$ $10 \cdot 10$

$x^2 + 0x - 100$

$$(x+10)(x-10)$$

$$\begin{array}{r} -10x \\ +10x \\ \hline 0 \end{array} \checkmark$$

9. $25x^2 - 4$

$5x \cdot 5x$ $2 \cdot 2$

$25x^2 + 0x - 4$

$$(5x+2)(5x-2)$$

$$\begin{array}{r} 10x \\ -10x \\ \hline 0 \end{array} \checkmark$$

10. $4x^2 - 9$

$2x \cdot 2x$ $3 \cdot 3$

$4x^2 + 0x - 9$

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

$$\begin{array}{r} 6x \\ -6x \\ \hline 0 \end{array} \checkmark$$

11. Simplify $(2x+5)(3x-2)$

$$6x^2 - 4x + 15x - 10$$
$$\boxed{6x^2 + 11x - 10}$$

12. Simplify $(3x+8)(3x-8)$

$$9x^2 - 24x + 24x - 64$$
$$\boxed{9x^2 - 64}$$

13. Simplify $7\sqrt{18} = 7\sqrt{9} \cdot \sqrt{2} = 7 \cdot 3\sqrt{2} = \boxed{21\sqrt{2}}$

$$i^2 = -1$$

14. Simplify the expression with imaginary number i "add cinnamon"

$$(4i+9)(3i-4)$$

$$12i^2 - 16i + 27i - 36$$

$$12(-1) + 11i - 36$$

$$\boxed{-12} + 11i \boxed{-36}$$

$$\boxed{-48 + 11i}$$

15. Simplify the expression with imaginary number i "add cinnamon"

$$(5i+3)(5i-3)$$

$$25i^2 - 15i + 15i - 9$$

$$25(-1) - 9$$

$$-25 - 9$$

$$\boxed{-34}$$

16. Simplify the expression with imaginary number i

$$3\sqrt{-20}$$

$$3i\sqrt{4} \cdot \sqrt{5} = 3 \cdot 2i\sqrt{5} = 6i\sqrt{5}$$