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09/03/2020 More Binomials

- I can simplify polynomials
- Distributive Method

warm-up

①

$$y^2 + 3y + 2y$$
$$y^2 + 5y$$

②

$$x - 2 + 5x + 3$$
$$6x + 1$$

③

$$a^2 + 2x - a + 4x$$
$$a^2 + 6x - a$$

Binomials : Distributive Method

Ex1)

$$y \cdot y' \quad (y + 8)(y - 4)$$
$$y(y - 4) + 8(y - 4)$$
$$y^2 - 4y + 8y - 32$$
$$y^2 + 4y - 32$$

Ex2)

$$(5x - 4)(2x + 8)$$
$$5x(2x + 8) - 4(2x + 8)$$
$$10x^2 + 40x - 8x - 32$$
$$10x^2 + 32x - 32$$

$$x^2$$

$$x \cdot x$$

Special Products

Ex1) $(3c-4)^2$

$$(3c-4)(3c-4)$$

$$3c(3c-4) - 4(3c-4)$$

$$9c^2 - 12c - 12c + 16$$

$$9c^2 - 24c + 16$$

Ex2) $(3n-2)(3n+2)$

$$3n(3n+2) - 2(3n+2)$$

$$9n^2 + 6n - 6n - 4$$

$$9n^2 - 4$$

Guided Practice

9/10

①

$$(5x+6)(8x-4)$$

$$5x(8x-4) + 6(8x-4)$$

$$40x^2 - 20x + 48x - 24$$

$$40x^2 + 28x - 24$$

②

$$(8b-1)(5b-5)$$

$$8b(5b-5) - 1(5b-5)$$

$$40b^2 - 40b - 5b + 5$$

$$40b^2 - 45b + 5$$

Trinomials (3 terms)

①

$$(7k-3)(k^2-2k+7)$$

$$k^1 \cdot k^2 = k^3$$

$$k^2 - 2k + 7$$

$$7k \quad 7k^3 \quad -14k^2 \quad 49k$$

$$-3 \quad -3k^2 \quad 6k \quad -21$$

$$7k^3 - 3k^2 - 14k^2 + 6k + 49k - 21$$

$$7k^3 - 17k^2 + 55k - 21$$

②

$$(n^2+6n-4)(2n-4)$$

$$2n - 4$$

$$n^2 \quad 2n^3 \quad -4n^2$$

$$+6n \quad 12n^2 \quad -24n$$

$$-4 \quad -8n \quad 16$$

$$2n^3 - 4n^2 + 12n^2 - 24n - 8n + 16$$

$$2n^3 + 8n^2 - 32n + 16$$

* Multiply

* write answers

* combine like terms

Trinomial Preview

Warm-up

- I can simplify polynomials

#21

①

$$(7r^2 - 6r - 6)(2r - 4)$$

$$7r^2 - 6r - 6$$

$$2r \begin{array}{|l} 14r^3 - 12r^2 - 12r \end{array}$$

$$-4 \begin{array}{|l} -28r^2 + 24r + 24 \end{array}$$

$$14r^3 - 12r^2 - 12r - 28r^2 + 24r + 24$$

$$14r^3 - 40r^2 + 12r + 24$$

#23

②

$$(6n^2 - 6n - 5)(7n^2 + 6n - 5)$$

$$7n^2 + 6n - 5$$

$$6n^2 \begin{array}{|l} 42n^4 \quad 36n^3 - 30n^2 \end{array}$$

$$-6n \begin{array}{|l} -42n^3 - 36n^2 + 30n \end{array}$$

$$-5 \begin{array}{|l} -35n^2 - 30n + 25 \end{array}$$

$$42n^4 + 36n^3 - 30n^2 - 42n^3 - 36n^2 + 30n - 35n^2 - 30n + 25$$

$$42n^4 - 6n^3 - 101n^2 + 25$$

Greatest Common Factor

• I can find the GCF

* Greatest number and/or variable they have in common *

①

4, 8

GCF: 4

$$\begin{array}{r|l} 4 & 2, 4 \\ 8 & 2, 4, 8 \end{array}$$

②

10, 15

GCF: 5

$$\begin{array}{r|l} 10 & 2, 5, 10 \\ 15 & 3, 5 \end{array}$$

③

30, 21

GCF: 3

$$\begin{array}{r|l} 30 & 2, 3, 5, 6, 10, 15, 30 \\ 21 & 3, 7, 21 \end{array}$$

④

$2x$, $10x$

GCF: $2x$

$$\begin{array}{r|l} 2x & 1, 2, x \\ 10x & 2, 5, 10, x \end{array}$$

⑤

$8a$, $24a^2$

GCF: $8a$

$$\begin{array}{r|l} 8a & 2, 4, 8, a \\ 24a^2 & 2, 3, 4, 6, 8, a, a \end{array}$$

More Greatest Common Factor

- I can factor polynomials

Warm-up

① Find the GCF

$$10, 25 : 5$$

$$\begin{array}{r|l} 10 & 2, 5, 10 \\ 25 & 5, 25 \end{array}$$

② Find the GCF

$$6x^2, 9x^3 : 3x^2$$

$$\begin{array}{r|l} 6x^2 & 2, 3, 6, x, x \\ 9x^3 & 3, x, x, x, x \end{array}$$

Factoring Polynomials

$$\textcircled{1} 9x + 36 : 9(x + 4)$$

$$\begin{array}{r|l} 9x & 3, 9, x \\ 36 & 2, 3, 9 \end{array}$$

$$\textcircled{2} 6n^3 - 3n^5 : 3n^3(2 - n^2)$$

$$\begin{array}{r|l} 6n^3 & 2, 3, 6, n, n, n \\ -3n^5 & 3, n, n, n, n, n \end{array}$$

Factoring Polynomials

③ $(45b + 63)$

$45b$		5	9	15	6
63		9	1		

First : take out
the GCF

Then : Rewrite
what's left

$$\boxed{9(5b + 7)}$$

④ $(35x^6 + 63x^{12})$

$35x^6$		5	7	35	x	x	x	x	x	x
$63x^{12}$		7	1		x	x	x	x	x	x

$$\boxed{7x^6(5 + 9x^6)}$$

⑤ $(9x^6 + 27x^3 + 90x^2)$

$9x^6$		3	9	x	x	x	x	x	x
$27x^3$		3	9	x	x	x			
$90x^2$		3	9	x	x				

$$\boxed{9x^2(1x^4 + 3x + 10)}$$

09/17/2020

GCF and Factoring

- I can factor out the GCF

Warm-up

①

$$12r^2 + 4r - 16$$

$4r$	$ $	2	$,$	4	$ $	r
$12r^2$	$ $	2	$,$	4	$ $	r, r
-16	$ $	2	$,$	4	$ $	

$$4(3r^2 + r - 4)$$

② $-18n^2 + 15n - 21$

$15n$	$ $	3	$ $	5	$,$	15	$,$	n
$-18n^2$	$ $	3	$ $	n	$,$	n	$ $	
-21	$ $	3	$ $		$ $		$ $	

$$3(-6n^2 + 5n - 7)$$

Guided Practice Examples

- Factor out the GCF and write what's left

①

$$15a + 25b$$

\wedge $\boxed{3} \cdot \boxed{5} \cdot \boxed{a}$	\wedge $\boxed{5} \cdot \boxed{5} \cdot \boxed{b}$
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$$5(3a + 5b)$$

②

$$7c^3 - 28c^2d + 35cd^3$$

\wedge $\boxed{1} \cdot \boxed{7}$ $\boxed{c} \cdot \boxed{c} \cdot \boxed{c}$	\wedge $\boxed{-4} \cdot \boxed{7}$ $\boxed{c} \cdot \boxed{c} \cdot \boxed{d}$	\wedge $\boxed{5} \cdot \boxed{7}$ $\boxed{c} \cdot \boxed{d} \cdot \boxed{d} \cdot \boxed{d}$
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$$7c(c^2 - 4cd + 5d^3)$$