

Teacher Castello, Pereira, Piuser, Tober Subject Algebra 1 Dates Week 1: 4/20-4/24

Welcome to our Distance Learning Classroom!

Student Time Expectation per day: 30 minutes

Content Area & Materials Algebra 1	Learning Objectives	Tasks	Check-in Opportunities	Submission of Work for Grades
<p>PAPER PACKET</p> <ul style="list-style-type: none"> Weekly Planner (this sheet) Notes/Examples page 3 worksheets on adding, subtracting, and multiplying polynomials. <p>Digital Option</p> <ul style="list-style-type: none"> Log on to your khan academy account at www.khanacademy.org Complete the khan academy activities assigned by your teacher. 	<p>ESSENTIAL QUESTION:</p> <p>How to perform the operations of addition, subtraction, and multiplication on polynomials</p> <p>STUDENTS WILL...</p> <ul style="list-style-type: none"> Be able to add and subtract polynomials by combining like terms. Be able to use the foil method or area/box method to multiply two binomials or binomial and a trinomial. 	<p>PAPER PACKET:</p> <p>If you picked up a paper packet you are expected to turn in the 3 worksheets completed in order to get credit for week 1. (per distance learning calendar, week 1 work is due May 8). Work should be shown on a separate piece of paper. You are also welcome to scan or take photos of your work and email them to your teacher.</p> <p>ONLINE WORK:</p> <p>You are to complete the assigned Khan academy activities by May 8.</p>	<p>OFFICE HOURS:</p> <p>Mrs. Castello: Office Hours: Mon - Fri, 9am - 11am Email: ecastello@tusd.net Google #: (209) 597-8667</p> <p>Ms. Pereira: Office Hours: Zoom meeting Mon-Fri, 12pm - 1pm Email: mpereira@tusd.net Google #: (209) 597-8039</p> <p>Mr. Piuser: Office Hours: Mon-Fri, 12pm - 2pm Email: apiuser@tusd.net Google #: (209) 691-3102</p> <p>Mrs. Tober: Office Hours: Mon - Fri, 1pm - 3pm Email: jtober@tusd.net Google #: (209) 597-8704</p>	<p>Students are expected to complete the paper packet or the digital option in order to receive full credit.</p> <p>IF SUBMITTING THE PAPER PACKET, LABEL WITH:</p> <ul style="list-style-type: none"> Student Name (First and Last) Teacher Name Algebra 1 Period #: _____ <p>PREFERRED: TO SUBMIT ELECTRONICALLY, simply email your teacher a scan or photos of your completed work.</p>

Definitions

Term: math expressions separated by a plus or minus sign.

Like terms: terms that have the same variables with the same exponent. Ex: $2x^2$ and $5x^2$, but not $2x^2$ and $2x^5$. Also not $2x^2$ and $2x^2y$. Like terms can be added and subtracted, but not unlike terms.

Adding polynomials

Ex: $(3x^5 - 4x^3 + x) + (7x^4 - 4x^3 + 2x^2)$

Box method

x^5	x^4	x^3	x^2	x	<i>const.</i>
3	0	-4	0	1	0
0	7	-4	2	0	0
3	7	-8	2	1	0

$$= 3x^5 + 7x^4 - 8x^3 + 2x^2 + x$$

Line-up method

$$\begin{array}{r}
 3x^5 \quad - 4x^3 \quad + x \\
 + \quad 7x^4 - 4x^3 + 2x^2 \\
 \hline
 3x^5 + 7x^4 - 8x^3 + 2x^2 + x
 \end{array}$$

Subtracting polynomials

Ex: $(-3x^3 + 8x^2 - 7) - (7x^4 - 6x^2 + 2)$

Box method

x^4	x^3	x^2	x	<i>const.</i>
0	-3	8	0	-7
7	0	-6	0	2
-7	-3	14	0	-9

$$= -7x^4 - 3x^3 + 14x^2 - 9$$

Line-up method

$$\begin{array}{r}
 -3x^3 + 8x^2 - 7 \\
 - 7x^4 \quad - 6x^2 + 2 \\
 \hline
 -7x^4 - 3x^3 + 14x^2 - 9
 \end{array}$$

Reminder: Subtracting a negative is the same as adding, which is why $8 - (-6)$ is 14.

Multiplying polynomials

Ex: $(2x + 5)(4x^2 - 5x + 6)$

Box/Area model

	$4x^2$	$-5x$	$+6$
$2x$	$2x \cdot 4x^2$	$2x \cdot -5x$	$2x \cdot 6$
$+5$	$5 \cdot 4x^2$	$5 \cdot -5x$	$5 \cdot 6$

$$\begin{aligned}
 &= 8x^3 + 20x^2 - 10x^2 - 25x + 12x + 30 \\
 &= 8x^3 + 10x^2 - 13x + 30
 \end{aligned}$$

FOIL/Everything left times everything right

$$\begin{aligned}
 2x \cdot 4x^2 &= 8x^3 \\
 2x \cdot -5x &= -10x^2 \\
 2x \cdot 6 &= 12x \\
 5 \cdot 4x^2 &= 20x^2 \\
 5 \cdot -5x &= -25x \\
 5 \cdot 6 &= 30
 \end{aligned}$$

$$\begin{aligned}
 &= 8x^3 + 20x^2 - 10x^2 - 25x + 12x + 30 \\
 &= 8x^3 + 10x^2 - 13x + 30
 \end{aligned}$$

Why is an Idea Like the Pacific?

For each exercise below, add the polynomials. Find your answer at the bottom of the page and write the letter of that exercise above it.

(T) $6x + 9$

(I) $3x - 4$

(O) $8x^2 + 2x + 1$

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

$\frac{x-1}{x-1}$

$\frac{5x-7}{5x-7}$

$\frac{x^2-4x+7}{x^2-4x+7}$

$\frac{6x^2-x}{6x^2-x}$

(N) $(7x^2 + 3x + 9) + (2x^2 + 5x - 2)$

(U) $(-3x^2 + x - 7) + (8x^2 - 4x - 4)$

(I) $(6x^3 + 2x^2 - 3x) + (3x^3 - 10x^2 - x)$

(T) $(-4x^3 + 6x + 1) + (5x^2 - x - 12)$

(O) $(9x^3 - x^2 + 8) + (-9x^3 + 2x^2 + 3x)$

(S) $(2x^4 + 5x^2 - 11) + (-6x^4 - 7x^2 + 1)$

(N) $(-4x^4 + 3x^3 - 7x^2 - x) + (-9x^3 + 7x^2 - 5x - 1)$

(J) $(4x^2 + 3xy - y^2) + (x^2 - 8xy - 2y^2)$

(A) $(2x^2y - xy^2) + (6x^2y + 7xy^2)$

(T) $(x^3y + 3x^2y^2 + 2xy^3) + (2x^3y - 9x^2y^2 - xy^3)$

Daffynition Decoder

1. Romantic:

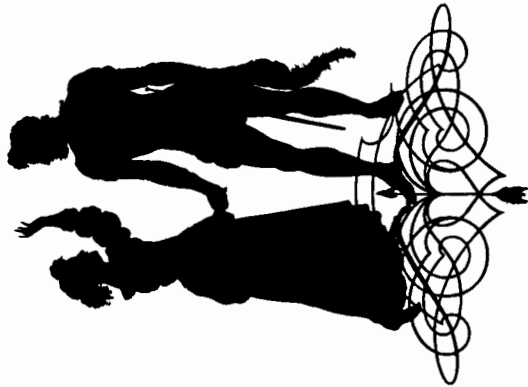
11 13 8 12 11 1 8 11 13 8 13 10 3 5 12

2. American:

11 2 11 9 9 6 5 7 13 12 11 8 13 3 4

For each exercise below, subtract the second polynomial from the first. Find your answer in the answer column and notice the letter next to it. Each time the exercise number appears in the code, write this letter above it. Keep working and you will decode the “de-fun-itions.”

- ① $(7x + 4) - (2x + 9)$
- ② $(3x + 12) - (5x - 6)$
- ③ $(-4x^2 + 10) - (6x^2 - 9)$
- ④ $(2x^2 + 3x + 8) - (x^2 + 5x - 1)$
- ⑤ $(-x^2 + 9x - 2) - (9x^2 - 4x + 4)$
- ⑥ $(3x^2 + 7x + 1) - (8 + 5x + x^2)$
- ⑦ $(4x^3 + 6x^2 - 8x) - (x^3 - 2x^2 + 12x)$
- ⑧ $(x^3 + 2x^2 + 5x) - (3x^2 - x - 7)$
- ⑨ $(x^4 + 8x^2 - 1) - (x^2 - 3x^3 + x^4)$
- ⑩ $(5x^4 - 2x^2) - (3x - 2x^2 - 4x^3 + 6x^4)$
- ⑪ $(3x^2 + 7xy - 2y^2) - (x^2 - 6xy + 2y^2)$
- ⑫ $(-x^2 - 9xy + 5y^2) - (4x^2 - 2xy - y^2)$
- ⑬ $(4x^2y - 3xy^2) - (3x^2y - 8xy^2)$



Answers:

- (M) $-x^4 + 4x^3 - 7x^2$
 (S) $-x^4 + 4x^3 - 3x$
 (U) $3x^3 + 5x^2 + 7$
 (L) $5x - 5$
 (E) $-10x^2 + 19$
 (F) $2x^2 + 2x - 19$
 (C) $-10x^2 + 13x - 6$
 (H) $-2x + 18$
 (T) $-5x^2 - 7xy + 6y^2$
 (O) $3x^3 + 8x^2 - 20x$
 (P) $3x^3 + 7x^2 - 1$
 (R) $x^2 - 2x + 9$
 (A) $2x^2 + 13xy - 4y^2$
 (N) $x^2y + 5xy^2$
 (Y) $2x^2 + 2x - 7$
 (B) $-5x^2 - 6xy + 7y^2$
 (I) $x^3 - x^2 + 6x + 7$

Why Is a Stick of Gum Like a Sneeze?

For each exercise, multiply the two polynomials. Find your answer in the set of answers under the exercise. Cross out the letter above your answer. When you finish, the answer to the title question will remain!

- ① $(x + 3)(x + 5)$
- ② $(x + 2)(x + 9)$
- ③ $(x - 8)(x + 1)$
- ④ $(x - 3)(x - 6)$
- ⑤ $(2x + 9)(x - 2)$
- ⑥ $(3x + 1)(2x + 4)$

- ⑦ $(4a - 7)(3a - 2)$
- ⑧ $(2a + 5)(2a - 5)$
- ⑨ $(6a - 1)(2a + 4)$
- ⑩ $(a + 2b)(4a + b)$
- ⑪ $(5a + 3b)(a - 4b)$
- ⑫ $(3a - 8b)(2a - b)$

- ⑬ $(n + 2)(n^2 + 5n - 3)$
- ⑭ $(3n - 1)(2n^2 + 4n + 4)$
- ⑮ $(2n + 3)(6n^2 - 2n + 1)$
- ⑯ $(4n - 5)(n^2 - 7n - 2)$
- ⑰ $(3n - 4)(4n^2 + 2n + 3)$
- ⑱ $(n + 8)(6n^2 - n - 4)$

B	E	S	I	A	U	T	N	T	I	S	E	R	A	N	O	T	C	R	I	H	E	A	N	W	D
$x^2 - 7x - 8$	$x^2 + 8x + 15$	$6x^2 + 14x + 4$	$6x^2 + 7x + 4$	$x^2 - 9x + 18$	$x^2 + 11x + 18$	$x^2 - 13x + 18$	$2x^2 + 5x - 18$	$4a^2 + 9ab + 2b^2$	$6a^2 - 19ab + 8b^2$	$5a^2 - 11ab - 12b^2$	$12a^2 + 22a - 4$	$4a^2 - 25$	$4a^2 + 4ab + 3b^2$	$5a^2 - 17ab - 12b^2$	$12a^2 - 29a + 14$	$6n^3 + 47n^2 - 12n - 32$	$6n^3 + 44n^2 - 9n - 32$	$4n^3 - 33n^2 + 27n + 10$	$6n^3 + 10n^2 + 8n - 4$	$n^3 + 6n^2 + 9n - 6$	$12n^3 - 9n^2 - 2n - 12$	$12n^3 - 10n^2 + n - 12$	$n^3 + 7n^2 + 7n - 6$	$4n^3 - 30n^2 + 21n + 10$	$12n^3 + 14n^2 - 4n + 3$