Feb 5/2019

Review - Part 2

Solving Systems of Equations

Expanding & Simplifying Quadratic Relations

Jan 31-2:27 PM

The solution to a linear system is the point (x,y) where the lines intersect.

Three methods to solve:

1. Graphically
2. By substitution
3. By elimination

Ex.1 Substitution: Solve $3x - y = 2$ and $x = y - 2$

Ex.2 Elimination: Solve $5x + 2y = 5$ and $3x - 4y = -23$

① $\times 3$: $15x + 6y = 15$

② $\times 5$: $15x - 20y = -115$

$-$

$3x - 4y = -23$

$10x + 4y = 10$

$+$

Feb 2-10:00 AM

Ex.1 Substitution: Solve 3x - y = 2 and x = y - 2

Sub the x-value from the second equation into the first equation

① $3x - y = 2$ ② $x = y - 2$

sub ② into ①

① : $3(y-2) - y = 2$

$3y - 6 - y = 2$

$2y - 6 = 2$

$2y = 8$

$y = 4$

sub $y = 4$ into ②

$x = 4 - 2$

$x = 2$

∴ solution is $(2, 4)$

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Ex.2 Elimination: Solve 5x + 2y = 5 and 3x - 4y = -23

Match coefficients of the x-term or y-term, then add or subtract equations

① x 2 : $10x + 4y = 10$

② : $3x - 4y = -23$

add : $13x = -13$

$x = -1$

sub $x = -1$ into ① OR ②

$5(-1) + 2y = 5$

$-5 + 2y = 5$

$2y = 10$

$y = 5$

∴ solution is $(-1, 5)$

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Expanding two binomials
(a) distributive property

$(a+b)(c+d)$

$= a(c+d) + b(c+d)$

$= ac + ad + bc + bd$

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Expanding two binomials
(b) distributive property (using FOIL)

$(a+b)(c+d)$

$= ac + ad + bc + bd$

First
Outer
Inner
Last

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Expanding two binomials
(c) area model

$(a+b)(c+d)$ $= ac+ad+bc+bd$

	a	$+b$
c	ac	bc
$+d$	ad	bd

$(3x+2y+5)(2x-7y)$

	$3x$	$+2y$	$+5$
$2x$	$6x^2$	$4xy$	$10x$
$-7y$	$-21xy$	$-14y^2$	$-35y$

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Ex.1 Expand each of the following:

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

$= 2x^2-3x+8x-12$

$= 2x^2+5x-12$

(b) $(2x-3)^2$

$(2x-3)^2$

$=(2x-3)(2x-3)$

$= 4x^2-6x-6x+9$

$= 4x^2-12x+9$

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

$= 3x^2+13xy-10y^2$

	x	$+5y$
$3x$	$3x^2$	$15xy$
$-2y$	$-2xy$	$-10y^2$

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

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Homework:

p.29 # 1acf, 2ace
p.31 # 8ac, 9ace, 10ae
p.33 # 11ace, 12ace, 13ace

Tomorrow's Work:

p.3 # 4odd, 5odd, 6odd

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p 31 9(e)

$3(2x-9)-3-1(4x+1)+2$

$= 6x-27-3-4x-1+2$

$= 2x-29$

10(e) $2x[x+2(x-3)]-x(3x-4)$

$= 2x[x+2x-6]-3x^2+4x$

$= 2x[3x-6]-3x^2+4x$

$= 6x^2-12x-3x^2+4x$

$= 3x^2-8x$

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p. 33 13 c e

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

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

$= 2x^2-2x-24+10x^2+55x-30$

$= 12x^2+53x-54$

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13(e) $2(m-3)(m-4) - 3(m+5)^2$

$= 2(m-3)(m-4) - 3(m+5)(m+5)$

$= 2(m^2-7m+12) - 3(m^2+10m+25)$

$= 2m^2-14m+24-3m^2-30m-75$

$= -m^2-44m-51$

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