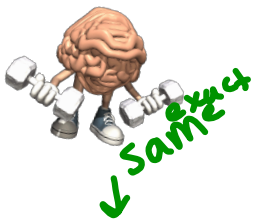
Warm Up



Passed out yesterday

1) Solve the following systems:

a) ② $2x - 3y = 16$
① ③ $x + 2y = 1$ $\xrightarrow{-2y \quad +2y}$ ③ $x = 1 - 2y$

⇓ Sub into ②

② $2x - 3y = 16$

$2(1-2y) - 3y = 16$

$2 - 4y - 3y = 16$

$2 - 7y = 16$

$2^{-2} - 7y = 16^{-2}$

$-7y = 14$

$\frac{-7y}{-7} = \frac{14}{-7}$

$y = -2$

⇓ Sub into ③

$x = 1 - 2y$

$x = 1 - 2(\ )$

$x = 1 - 2(-2)$

$= 1 + 4$

$x = 5$

$(5, -2)$

b) $5x + 4y = -7$
$-(3x + 4y = -1)$
① - ②

① $5x + 4y = -7$
$-3x - 4y = +1$

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

$x = -3$

$5x + 4y = -7$
$5(-3) + 4y = -7$
$-15 \overset{+15}{} + 4y = -7 \overset{+15}{}$

$\frac{4y}{4} = \frac{8}{4}$

$y = 2$

$(-3, 2)$

Math 10 (Numbers Relations & Functions) Name_____

Elimination

HW Solutions

Date_____

Solve each system by elimination.

1) $2x + 8y = 8$
$-3x - 8y = -4$

2) $-x + 4y = 7$
$x + 4y = 25$

3) $-9x + 8y = 15$
$-9x + 6y = 27$

4) $-x - 5y = -3$
$-x + 3y = 13$

5) $-5x + 2y = 9$
$6x - 2y = -8$

6) $5x + 5y = 30$
$5x + 2y = 12$

7) $-10x + 8y = -28$
$9x + 4y = 14$

8) $-6x + y = -15$
$-12x - 3y = -15$

9) $-5x + 10y = -10$
$-7x - 5y = -14$

10) $-5x + 10y = 5$
$10x - 4y = 6$

11) $7x - 2y = 24$
$3x + 9y = 30$

12) $-3x - 2y = 2$
$-5x - 3y = 6$

13) $3x - 6y = 30$
$-10x - 9y = -13$

14) $7x - 10y = 0$
$-9x - 4y = 0$

15) $-10x + 7y = 12$
$-3x + 6y = -12$

16) $-3x + 4y = 2$
$-5x + 3y = 29$

17) $-10x - 6y = -14$
$8x + 5y = 11$

18) $-3x - 2y = 8$
$-8x - 7y = 18$

1) $2x + 8y = 8$
$-3x - 8y = -4$
$(-4, 2)$

2) $-x + 4y = 7$
$x + 4y = 25$
$(9, 4)$

3) $-9x + 8y = 15$
$-9x + 6y = 27$
$(-7, -6)$

4) $-x - 5y = -3$
$-x + 3y = 13$
$(-7, 2)$

5) $-5x + 2y = 9$
$6x - 2y = -8$
$(1, 7)$

6) $5x + 5y = 30$
$5x + 2y = 12$
$(0, 6)$

Elimination using Multiplication

Consider the system

① 1x + 2y = 6

② 3x + 3y = -6

How are they related?

What could we do to equation 1 to make t

multiply equation 1 by 3

answer

all terms

①x3 → ③ 3x + 6y = 18

② 3x + 3y = -6 →

③ - ②

③ 3x + 6y = 18

-3x - 3y = 6

$\frac{3y}{3} = \frac{24}{3}$

y = 8

sub into ①

① x + 2y = 6

x + 2(8) = 6

x + 16 = 6

x + 16 -16 = 6 -16

x = -10

(-10, 8)

Elimination using Multiplication

Consider the system

$x + 2y = 6$

$3x + 3y = -6$

How are they related?

What could we do to equation 1 to make the "x" equal?

multiply equation 1 by 3

Elimination using Multiplication

Consider the system

$3x + 6y = 18$

$3x + 3y = -6$

Now subtract the equations

Elimination using Multiplication

Consider the system

$$3x + 6y = 18$$
$$-3x - 3y = +6$$

Now subtract the equations

Answer

Elimination using Multiplication

Consider the system

$$3x + 6y = 18$$
$$-3x - 3y = +6$$

Now subtract the equations

$$3y = 24$$

$$y = 8$$

Sub into equation 1 (original) or the above

$$x + 2y = 6$$
$$x + 2(8) = 6$$
$$x + 16 = 6$$
$$x = 6 - 16$$
$$x = -10$$

$$(-10, 6)$$

You Try

1)

① $x + 2y = 5$ → ① × 2

② $2x + 6y = 12$

③ $2x + 4y = 10$

② $2x + 6y = 12$ → $-2x - 6y = -12$

③ − ②

$-2y = -2$

$\frac{-2y}{-2} = \frac{-2}{-2}$

$y = 1$

Sub ①

① $x + 2y = 5$

$x + 2(1) = 5$

$x + 2(1) = 5$

$x + 2 = 5$

$x + 2 - 2 = 5 - 2$

$x = 3$

$(3, 1)$

Same so subtract

ANS: [ ]

2)

$$x + 2y = 4$$

$$x - 4y = 16$$

ANS: 

3) ① $2x + 3y = -14$ → ① x -2 → ③ $-4x - 6y = 28$

② $4x + 5y = -26$ ② $4x + 5y = -26$ ans

$-1y = 2$

$\frac{-1y}{-1} = \frac{2}{-1}$

$y = -2$

↓ sub into ①

$2x + 3y = -14$

$2x + 3(-2) = -14$

$2x - 6 = -14$

$2x - 6 + 6 = -14 + 6$

$\frac{2x}{2} = \frac{-8}{2}$

$x = -4$

$(-4, -2)$

Math 10 (Numbers Relations & Functions) Name_____

Elimination Same sheet as Yesterday Date_____

Solve each system by elimination.

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$5x + 2y = 12$

7) $-10x + 8y = -28$
$9x + 4y = 14$ (2,1)

8) $-6x + y = -15$
$-12x - 3y = -15$ (2,-3)

9) $-5x + 10y = -10$
$-7x - 5y = -14$ (2,0)

10) $-5x + 10y = 5$
$10x - 4y = 6$ (1,1)

11) $7x - 2y = 24$
$3x + 9y = 30$ (4,2)

12) $-3x - 2y = 2$
$-5x - 3y = 6$ (-6,8)

13) $3x - 6y = 30$
$-10x - 9y = -13$ (4,-3)

14) $7x - 10y = 0$
$-9x - 4y = 0$ (0,0)

15) $-10x + 7y = 12$
$-3x + 6y = -12$ (-4,-4)

16) $-3x + 4y = 2$
$-5x + 3y = 29$ (-10,-7)

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18) $-3x - 2y = 8$
$-8x - 7y = 18$ (-4,2)