Review for Test #5 - Systems of Equations

Name: _____ Class: _____

For each question, solve each system using the method indicated.

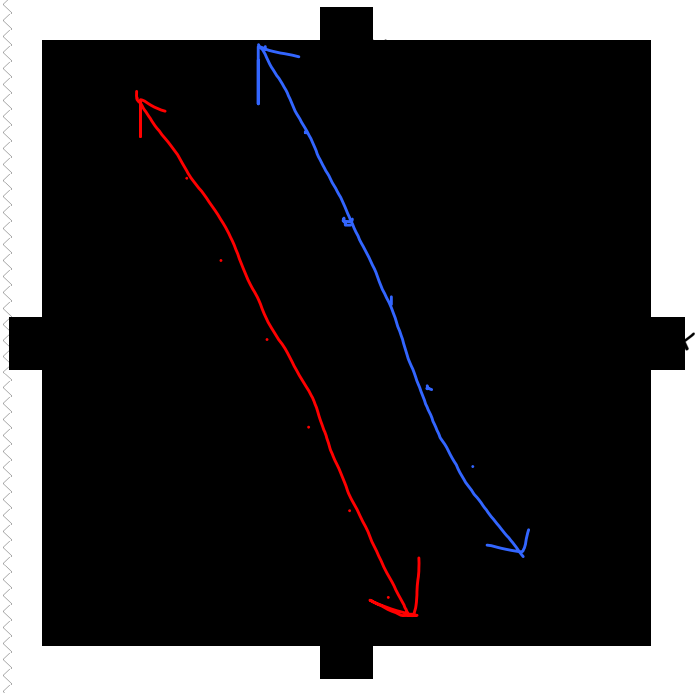
1.) Graphing

$y = 3 - 2x$

$2\left(\frac{y}{2} + x = -2\right)$

$y + 2x = -4$

$y = -2x - 4$



$\emptyset$ No solution

2.) Elimination

$7(-4x - 2y = 14) \rightarrow -28x - 14y = 98$

$2(-10x + 7y = -25) \rightarrow -20x + 14y = -50$

$-48x = 48$

$x = -1$

$-4(-1) - 2y = 14$

$4 - 2y = 14$

$-4 \quad -4$

$-2y = 10$

$y = -5$

$(-1, -5)$

3.) Substitution

$2x + y = 7 \rightarrow 2x + y = 7$

$8x + 4y = 28 \quad -2x \quad -2x$

$y = 7 - 2x$

$8x + 4y = 28$

$8x + 4(7 - 2x) = 28$

$8x + 28 - 8x = 28$

$28 = 28$

∞ solutions

4.) Which of the following systems of equations has the ordered pair (2,2) as the solution?

(A) $2x + y = 6$, $x - y = 4$ → $2x + y = 6$, $2(2) + 2 = 6$, $4 + 2 = 6$, $6 = 6$ ✓; $x - y = 4$, $2 - 2 = 4$, $0 \neq 4$

(B) $2x + y = 6$, $x + y = 4$, $2 + 2 = 4$, $4 = 4$ ✓

(C) $x + y = 5$, $2x + y = 6$, $2 + 2 = 5$, $4 \neq 5$

(D) $5x - y = 8$, $x + 2y = 4$, $5x - y = 8$, $5(2) - 2 = 8$, $10 - 2 = 8$, $8 = 8$ ✓; $x + 2y = 4$, $2 + 2(2) = 4$, $2 + 4 = 4$, $6 \neq 4$

5.) 432 tickets were sold for *The Lion King*. Balcony tickets cost $40 each and tickets for the main floor cost $120. The total amount of sales for each type of ticket was $30,560. How many tickets were sold for the balcony?

How many tickets were sold each?

Let # of balcony tix = b

Let # of main floor tix = m

set-up

$b+m=432$

$40b+120m=30560$

Solution:

$-40(b+m=432) \rightarrow -40b-40m=-17280$

$40b+120m=30560 \rightarrow 40b+120m=30560$

$80m=13280$

$m=166$

FINAL ANSWER → 166 main-floor tix, 266 balcony tix

$b+m=432$

$b+166=432$

$-166 \quad -166$

$b=266$

6.) A test has twenty questions worth 100 points. The test consists of True/False questions worth 3 points each and multiple-choice questions worth 11 points each. How many multiple choice questions are on the test?

Let # of T/F ?'s = x

Let # of MC ?'s = y

set-up

$x+y=20$

$3x+11y=100$

$x+y=20 \rightarrow x=20-y$

$3x+11y=100$

$3(20-y)+11y=100$

$60-3y+11y=100$

$60+8y=100$

$-60 \quad -60$

$8y=40$

$y=5$

$x+y=20$

$x+5=20 \rightarrow x=15$

final answer!

5 MC ?'s

7.) Greg and Bruno decide to spend the afternoon at an amusement park. They are charged for each ride and their favorite rides are the water slide and the roller coaster. Greg rode each ride three times and paid $17.70. Bruno rode the water slide twice and the roller coaster three times and paid $15.55. How much is each ride?

Let price of water slide = w

Let price of roller coaster = r

set-up:

$3w+3r=17.70$

$2w+3r=15.55$

$3r+3w=17.70 \rightarrow 3r+3w=17.70$

$-1(2r+3w=15.55) \rightarrow -2r-2w=-15.55$

$r=2.15$

$3r+3w=17.70$

$3(2.15)+3w=17.70$

$6.45+3w=17.70$

$3w=11.25$

$w=3.75$

Final answer

one ride on water slide costs $2.15.

one ride on roller coaster costs $3.75

8.) Your teacher is giving a test worth 100 points, consisting of four-point questions and six-point questions. There are a total of 21 questions. How many of each type of question is on the test?

Let # of 4-pt ?'s = x

Let # of 6-pt ?'s = y

set-up:

$x+y=21$

$4x+6y=100$

$-4(x+y=21) \rightarrow -4x-4y=-84$

$4x+6y=100$

$2y=16$

$y=8$

$x+8=21$

$-8 \quad -8$

$x=13$

Final answer

There were 13 4-pt ?'s and 8 6-pt ?'s

Make sure to visit http://shehatamath.weebly.com and click on Unit 5 – Systems under the Math 8 tab to check your work with the answer key online.

Yeah!

secret bonus for your math test

write these 2 words on the top of the front of your review sheet: "I'm awesome." ← and you are b/c you follow directions!!