

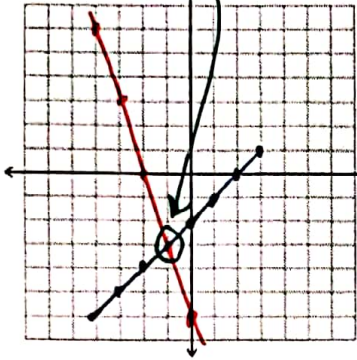
Spring Break - Unit 6 Review

Solve each system by graphing.

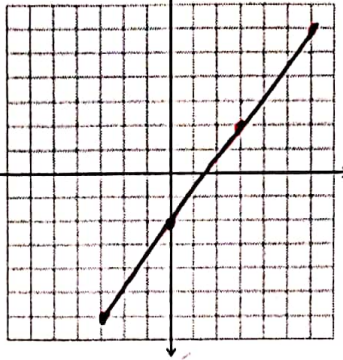
Tell whether the system has *one solution*, *infinitely many solutions*, or *no solution*.

Typo

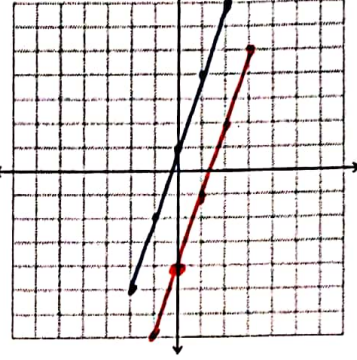
1. $y = x - 2$
 $y = -3x - 6$
 (-1, -3)



2. $3y - 4x = -6$
 $y = \frac{4}{3}x - 2$
 I.M.S.



3. $y = 3x - 4$
 $y - 3x = 1$
 $y = 3x + 1$
 No Sol.



Solve each system using substitution.

4. $y = 2x + 5$
 $y = 6x + 1$
 $2x + 5 = 6x + 1$
 $-2x \quad -2x$
 $5 = 4x + 1$
 $-1 \quad -1$
 $4 = 4x$
 $1 = x$
 Sol. (1, 7)
 $y = 2(1) + 5$
 $y = 7$

5. $x = y + 7$
 $y - 8 = 2x$
 $y - 8 = 2(y + 7)$
 $y - 8 = 2y + 14$
 $-y \quad -y$
 $-8 = y + 14$
 $+14 \quad -14$
 $22 = y$
 $x = 22 + 7$
 $x = 29$
 Sol. (29, 22)

6. $4x + y = 2$
 $3y + 2x = -1$
 $y = -4x + 2$
 $3(-4x + 2) + 2x = -1$
 $-12x + 6 + 2x = -1$
 $-10x + 6 = -1$
 $-6 \quad -6$
 $-10x = -7$
 $x = 7/10$
 $y = -4(7/10) + 2 = -2.8 + 2 = -0.8$
 Sol. (7/10, -0.8)

Solve each system using elimination.

7. $x + 3y = 11$
 $2x + 3y = 4$
 $x = -7$
 $-7 + 3y = 11$
 $+7 \quad +7$
 $3y = 18$
 $y = 6$
 Sol. (-7, 6)

8. $2x + 4y = -12$
 $-6x + 5y = 2$
 $+ 6x + 12y = -36$
 $17y = -34$
 $y = -2$
 $-6x + 5(-2) = 2$
 $-6x - 10 = 2$
 $+10 \quad +10$
 $-6x = 12$
 $x = -2$
 Sol. (-2, -2)

9. $4x + 2y = 39$
 $10x - 4y = -6$
 $+ 8x + 4y = 78$
 $18x = 72$
 $x = 4$
 $4(4) + 2y = 39$
 $16 + 2y = 39$
 $-16 \quad -16$
 $2y = 23$
 $y = 11.5$
 Sol. (4, 11.5)

Typo

Write a system of equations to model each situation. Solve by any method.

10. The sum of two numbers is 70. Their difference is 26. Write a system of equations that reflects the situation. Sol 48 and 22. What are the two numbers?

$$\begin{aligned} x + y &= 70 \\ x - y &= 26 \\ \hline 2x &= 96 \\ x &= 48 \end{aligned}$$

$48 + y = 70$
 $y = 22$

11. Two numbers have a sum -25 and a difference of -39. What are the two numbers?

$$\begin{aligned} x + y &= -25 \\ x - y &= -39 \\ \hline 2x &= -64 \\ x &= -32 \end{aligned}$$

$-32 + y = -25$
 $y = 7$

Sol -32 and 7

12. The sum of two numbers is 90. The larger number is 14 more than 3 times the smaller number. What are the two numbers?

$$\begin{aligned} x + y &= 90 \\ x &= 14 + 3y \\ \hline 14 + 3y + y &= 90 \\ 14 + 4y &= 90 \\ -14 & \quad -14 \\ \hline 4y &= 76 \\ y &= 19 \end{aligned}$$

$x + 19 = 90$
 $-19 \quad -19$
 $x = 71$

Sol 71, 19

13. You have ones & fives in your pocket. 61 bills total worth \$201. How many fives & ones are there?

$$\begin{aligned} x + y &= 61 \\ x + 5y &= 201 \\ \hline 4y &= 140 \\ y &= 35 \end{aligned}$$

$x + 35 = 61$
 $-35 \quad -35$
 $x = 26$

Sol 26, \$1 bills, 35, \$5 bills

14. Penny has a collection of dimes and nickels. She has 95 coins totaling \$4.90. Find how many of each type of coin she has.

$$\begin{aligned} x + y &= 95 \\ 0.10x + 0.05y &= 4.90 \\ \hline -1x + 0.05y &= -49 \\ \hline 0.05y &= 46 \\ y &= 92 \end{aligned}$$

$x + 92 = 95$
 $-92 \quad -92$
 $x = 3$

Sol 3, dimes 92, nickels

15. A house on City St. cost \$450 a month, plus a \$900 deposit. A house on Town Ave. costs \$600 a month with no deposit.

A) Define variable $x = \text{months}$	B) Write equation C. St. T. Ave. $450x + 900 = 600x$	C) Solve $\frac{900}{150} = \frac{150x}{150}$ $6 = x$	D) <u>How many months</u> do you need to live in City St. for it to be the cheaper option? <u>7 months</u>
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16. Joe is going on vacation and need to leave his cats at a kennel. Best Cat Kennel charges \$6 per day plus \$50 processing fee. The Here Kitty-Kitty Kennel charges \$8 per day and has a \$35 processing fee. How many days until they will cost the same?

A) Define variable $x = \text{days}$	B) Write equation B.C.K. H.K.K. $6x + 50 = 8x + 35$	C) Solve $50 = 2x + 35$ $-35 \quad -35$ $15 = 2x$ $\frac{15}{2} = \frac{2x}{2}$ $7.5 = x$	D) How long should your vacation be for it to make sense to use Best Cat Kennel? <u>8 days</u>
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17. Jay's Body Shop pays \$2400 a day for building rent & equipment. It usually costs \$450 to put together the average car. If they sell a car for an average of \$1,250, how many cars do they sell before they break even?

A) Define variable $x = \text{cars}$	B) Write equation for cost & income. Cost Income $2400 + 450x = 1250x$	C) Solve $\frac{2400}{800} = \frac{800x}{800}$ $3 = x$ <u>3 cars</u>
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