

For all questions on this page...

Determine if it has ONE solution, NO solution, or INFINITELY MANY solutions.

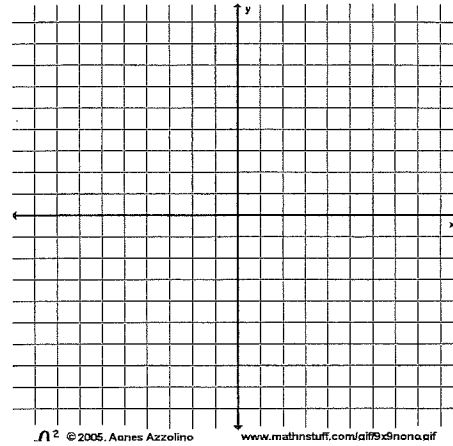
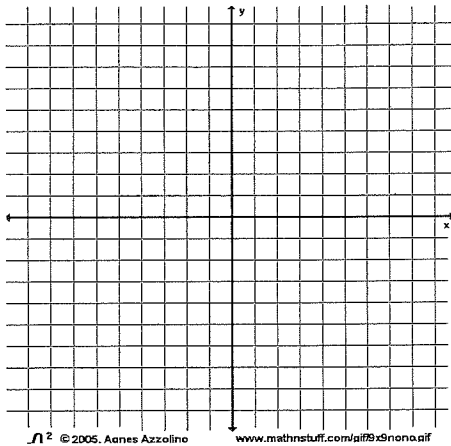
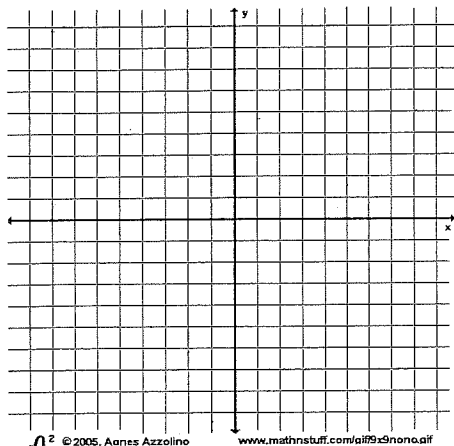
If it has ONE solution, tell what it is as an ordered pair.

For 1 - 3, GRAPH each system of equations in order to find the solution.

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

(2) $x + y = 2$
 $y = -x + 4$

(3) $y = 2x - 5$
 $-4x + 2y = -10$



For 4 - 6, use SUBSTITUTION to find the solution.

(4) $5x + 4y = 34$
 $x = 8 - 2y$

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

(6) $4x + 3y = 0$
 $y = -2x - 2$

For 7 - 9, use LINEAR COMBINATIONS (ELIMINATION) to find the solution.

(7) $x + 4y = 6$
 $x - 4y = 6$

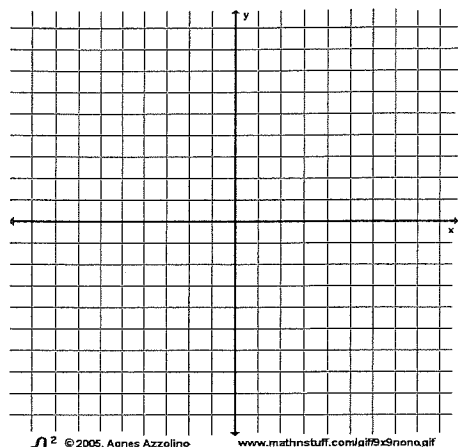
(8) $7x + 3y = 26$
 $3x - 2y = -2$

(9) $12x - 16y = 8$
 $3x - 4y = 2$

For 10 - 12, graph the system of inequalities.

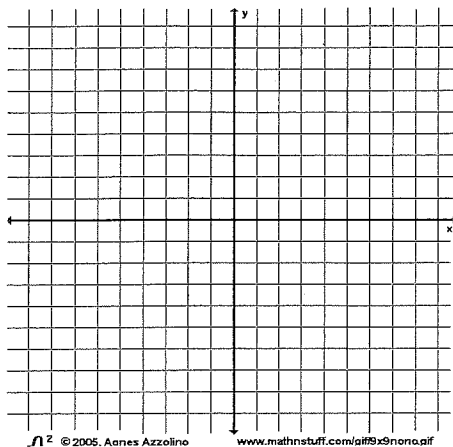
(10) $y < 2x + 1$

$y \geq 2x - 4$

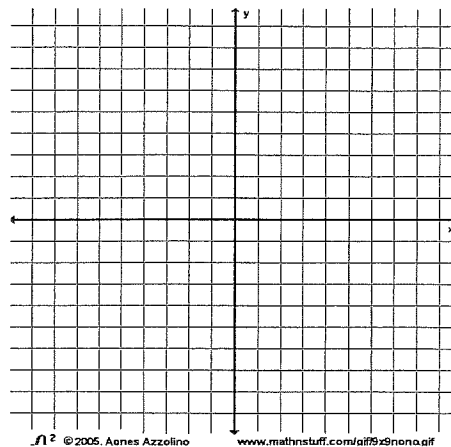


(11) $y < -x + 5$

$y > \frac{1}{2}x + 2$



(12) $y < 5, y > -1$



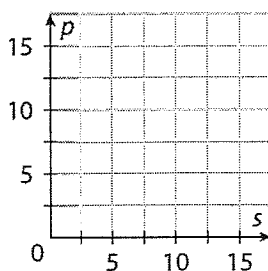
Write and solve a system of equations for each situation.

- (13) One week Beth bought 3 apples and 8 pears for \$14.50. The next week she bought 6 apples and 4 pears and paid \$14. Find the cost of 1 apple and the cost of 1 pear.

- (14) A small art museum charges \$5 for an adult ticket and \$3 for a student ticket. At the end of the day, the museum had sold 89 tickets and made \$371. How many student tickets and how many adult tickets were sold?

Write a system of inequalities and graph them to solve the problem.

- (15) Alie needs to buy at least 12 candles. Plain candles sell for \$4 each and scented candles sell for \$7 each. She can spend no more than \$70. Give one possible solution.



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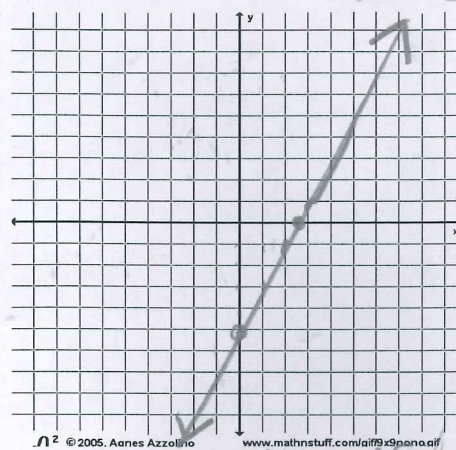
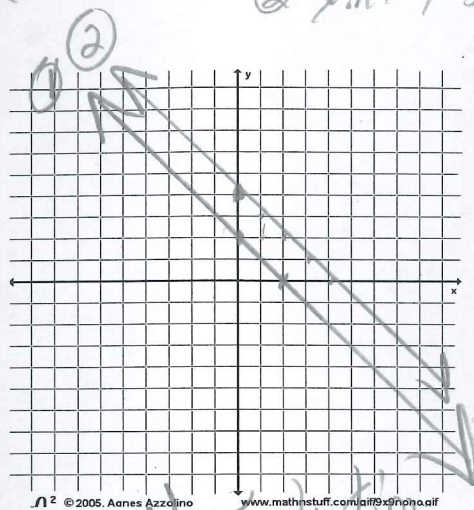
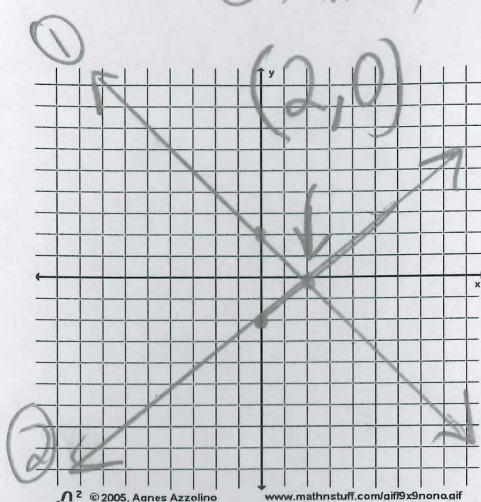
If it has ONE solution, tell what it is as an ordered pair.

For 1 - 3, **GRAPH** each system of equations in order to find the solution.

(1) $x + y = 2$ ① x int 2 y int 2
 $x - y = 2$ ② x int 2 y int -2

(2) $x + y = 2$ ① x int 2 y int 2
 $y = -x + 4$ ② y int 4 slope -1

(3) $y = 2x - 5$ ① slope 2 y int -5
 $-4x + 2y = -10$ ② x int 2.5 y int -5



For 4 - 6, use **SUBSTITUTION** to find the solution.

(4) $5x + 4y = 34$
 $x = 8 - 2y$
 $5(8 - 2y) + 4y = 34$
 $40 - 10y + 4y = 34$
 $40 - 6y = 34$
 $-6y = -6$
 $y = 1$
 $x = 8 - 2(1) = 6$
(6, 1)

(5) $x - 3y = 2$ $x = 3y + 2$
 $-2x + 6y = -4$
 $-2(3y + 2) + 6y = -4$
 $-6y - 4 + 6y = -4$
 $-4 = -4$
infinite solutions

(6) $4x + 3y = 0$
 $y = -2x - 2$
 $4x + 3(-2x - 2) = 0$
 $4x - 6x - 6 = 0$
 $-2x - 6 = 0$
 $-2x = 6$
 $x = -3$
 $y = -2(-3) - 2 = 4$
(-3, 4)

For 7 - 9, use **LINEAR COMBINATIONS (ELIMINATION)** to find the solution.

(7) $x + 4y = 6$
 $x - 4y = 6$
 $2x = 12$
 $x = 6$
 $6 - 4y = 6$
 $-4y = 0$
 $y = 0$
(6, 0)

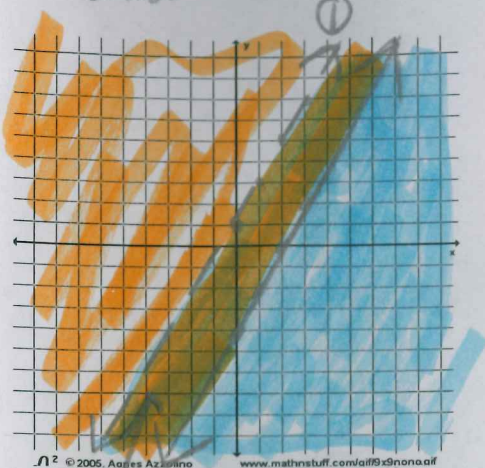
(8) $7x + 3y = 26$
 $3x - 2y = -2$
 $14x + 6y = 52$
 $9x - 6y = -6$
 $23x = 46$
 $x = 2$
 $7(2) + 3y = 26$
 $14 + 3y = 26$
 $3y = 12$
 $y = 4$
(2, 4)

(9) $12x - 16y = 8$
 $3x - 4y = 2$
 $-12x + 16y = -8$
 $3x - 4y = 2$
 $0 = 0$
infinite solutions

For 10 - 12, graph the system of inequalities.

(10) $y < 2x + 1$ ^{dashed} ① slope 2 y-int 1

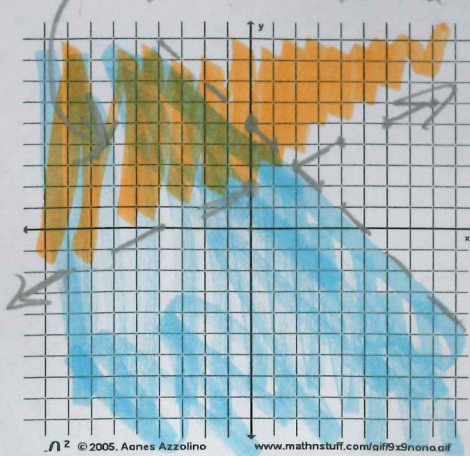
$y \geq 2x - 4$ ^{Solid}



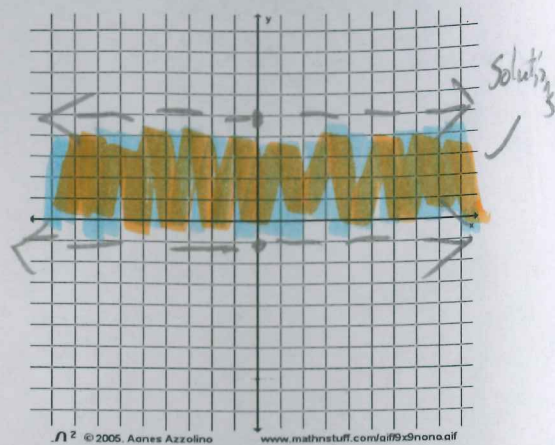
Solutions Between lines and on bottom line

(11) $y < -x + 5$ ^{dashed} ① slope -1 y-int 5

$y > \frac{1}{2}x + 2$ ^{dashed} ② slope 1/2 y-int 2



(12) $y < 5, y > -1$



Write and solve a system of equations for each situation.

- (13) One week Beth bought 3 apples and 8 pears for \$14.50. The next week she bought 6 apples and 4 pears and paid \$14. Find the cost of 1 apple and the cost of 1 pear.

$$\begin{aligned} 3x + 8y &= 14.50 \\ -2(6x + 4y &= 14) \\ -12x + 8y &= -28 \end{aligned}$$

$$\begin{aligned} 3x + 8y &= 14.50 \\ + -12x - 8y &= -28 \\ -9x &= -13.5 \\ x &= 1.5 \end{aligned}$$

Cost of Apple

$x = 1.5$

$$3(1.5) + 8y = 14.50$$

$$4.5 + 8y = 14.50$$

$$8y = 10$$

$y = 1.25$

Cost of pear

- (14) A small art museum charges \$5 for an adult ticket and \$3 for a student ticket. At the end of the day, the museum had sold 89 tickets and made \$371. How many student tickets and how many adult tickets were sold?

$$\begin{aligned} -5(x + y &= 89) \\ -5x - 5y &= -445 \\ 5x + 3y &= 371 \\ + 5x + 3y &= 371 \\ -2y &= -74 \\ y &= 37 \end{aligned}$$

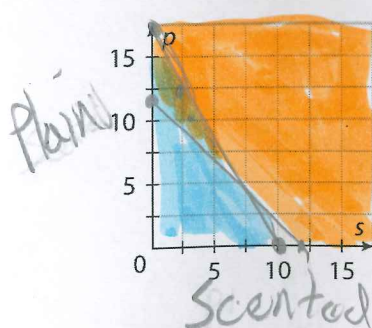
$$\begin{aligned} x + 37 &= 89 \\ x &= 52 \end{aligned}$$

37 students
52 Adults

Write a system of inequalities and graph them to solve the problem.

- (15) Alie needs to buy at least 12 candles. Plain candles sell for \$4 each and scented candles sell for \$7 each. She can spend no more than \$70. Give one possible solution.

$$\begin{aligned} x + y &\geq 12 \\ 4x + 7y &\leq 70 \end{aligned}$$



Possible 10 plain
3 scented