Name:_____ Date:_____Period:_____

# NOTES: SYSTEMS OF EQUATIONS

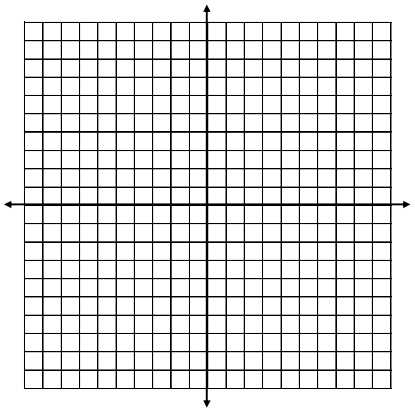
## *Solve by Graphing & Substitution*

## WHEN TO SOLVE BY GRAPHING

**Solve by graphing when:**

- It is easy to convert to slope-intercept form in both equations (i.e. solve for y)
- It is easy to see point of intersection on a coordinate plane (coordinates are integers and NOT fractions or decimals)
  - ✓ If you use a graphing calculator, it will calculate the exact point of intersection

$$\begin{cases} y = -2x + 3 \\ y + 9 = 4x \end{cases}$$



Solution:

( , )

## WHEN TO SOLVE USING SUBSTITUTION

**Solve using substitution when:**

- It is easy to solve for one variable in at least one equation (solve for x or y)

$$\begin{cases} x - 2y = 9 \\ 2x + 6y = 8 \end{cases}$$

Solution:

( , )

Name:_____ Date:_____Period: _____

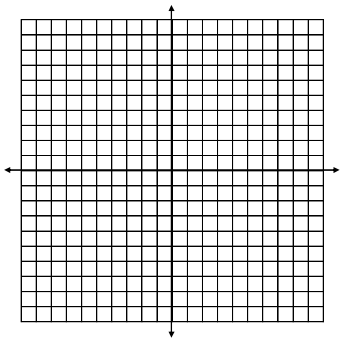
# A.___ SYSTEMS OF EQUATIONS

## *Solve by Graphing & Substitution*

## How do you stop an Astronaut's Baby From Crying?

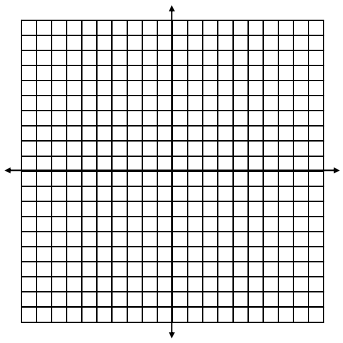
Solve all problems in the left column by graphing. Use substitution to solve the problems on the right. Find your answer in the systems puzzle answer bank and write the letter in the corresponding numbered boxes below.

**1.** $\begin{cases} y = x + 4 \\ y = 3x - 2 \end{cases}$



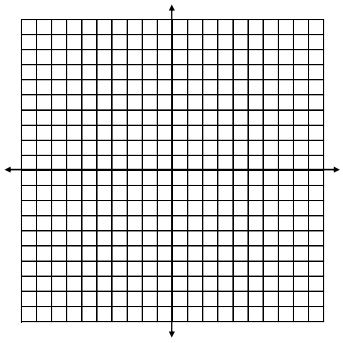
**2.** $\begin{cases} x = -y + 9 \\ 2x + y = 6 \end{cases}$

**3.** $\begin{cases} y = -x - 7 \\ x - 2y = 2 \end{cases}$



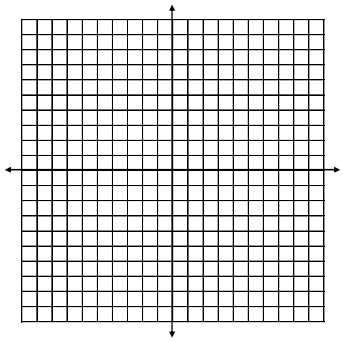
**4.** $\begin{cases} y = -2x + 10 \\ 2x + 5y = 2 \end{cases}$

**5.** $\begin{cases} y = 3x + 4 \\ 9x - 3y = 3 \end{cases}$



**6.** $\begin{cases} x = 2y - 6 \\ 4x - y = 11 \end{cases}$

**7.** $\begin{cases} 2x + y = 5 \\ x - y = -8 \end{cases}$



**8.** $\begin{cases} y - 3 = -2x \\ 8x + 4y = 12 \end{cases}$

| 3 | 6 | 8 | | 7 | 6 | 2 | 5 | 4 | 1 | ! |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |

# SYSTEMS PUZZLE ANSWER BANK

*Solve by Graphing & Substitution*

| | |
|---|---|
| A | (6, -4) |
| C | (-3, 12) |
| R | (-1, 7) |
| W | (3, -4) |
| U | Infinitely Many Solutions |
| B | (5, 4) |
| M | (9, 6) |
| E | (6, -2) |
| O | (4, 5) |
| S | (1, -7) |
| K | No Solution |
| L | (8, -2) |
| T | (3, 7) |
| Y | (-4, -3) |
| H | (4, 10) |
| G | (-2, 5) |


# SYSTEMS PUZZLE ANSWER BANK

*Solve by Graphing & Substitution*



| | |
|---|---|
| A | (6, -4) |
| C | (-3, 12) |
| R | (-1, 7) |
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| O | (4, 5) |
| S | (1, -7) |
| K | No Solution |
| L | (8, -2) |
| T | (3, 7) |
| Y | (-4, -3) |
| H | (4, 10) |
| G | (-2, 5) |