Quick Review

1. Align the equations with like terms in columns.

2. If needed, multiply one or both of the equations by a number so that there are opposite coefficients for one of the variables.

3. Add the equations. Solve for the remaining variable.

4. Substitute the value from Step 3 for that variable in either of the original equations. Solve for the other variable.

5. Check your solution (x, y) by substituting the x and y values in the original equations.

$-3x + y = 1$ (Multiply by -2)
$2x + 2y = 10$

$6x - 2y = -2$
$+ \ 2x + 2y = 10$
$8x \quad \ \ = 8$
$x = 1$

$-3(1) + y = 1$
$y = 4$

Solution: (1, 4)

$-3x + y = 1$ $\quad$ $2x + 2y = 10$
$-3(1) + 4 \overset{?}{=} 1$ $\quad$ $2(1) + 2(4) \overset{?}{=} 10$
$1 = 1$ $\quad\quad\quad$ $10 = 10$

Use linear combinations to solve each linear system.
Then use the answer code to reveal a message.

$$\underset{(5,-2)}{P} \ \underset{(1,\,1\frac{1}{2})}{E} \ \underset{(-6,\,13)}{R} \ \underset{(\frac{1}{3},\,2)}{F} \ \underset{(2,\,1)}{E} \ \underset{(3,-1)}{C} \ \underset{(9,-4)}{T}!$$

1. $2x + 3y = 7$
   $4x - 3y = 5$
   Solution: __(2, 1)__ [E]

2. $4x + 5y = 16$
   $-4x - 10y = 4$
   Solution: __(9, -4)__ [T]

3. $-6x - 2y = 10$
   $3x + 2y = 8$
   Solution: $(-6, 13)$ [R]

4. $2x + 4y = 8$
   $-5x + 4y = 1$
   Solution: $(1, 1\frac{1}{2})$ [E]

5. $3x + y = 8$
   $x + 2y = 1$
   Solution: $(3, -1)$ [C]

6. $6x - 3y = -4$
   $-3x + 5y = 9$
   Solution: $(\frac{1}{3}, 2)$ [F]

7. $3x - 5y = 25$
   $2x + 4y = 2$
   Solution: $(5, -2)$ [P]