Solving Systems 4

Using Substitution or Elimination

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1. $-10x + 6y = 3$
   $-5x + 3y = -1$

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2. $8x + 16y = 10$
   $12x + 24y = 15$

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3. $\frac{1}{6}x - \frac{1}{2}y = \frac{10}{3}$
   $\frac{3}{5}x + \frac{1}{5}y = 6$

4. A policeman and a fisherman found themselves at the same coffee/donut shop every morning. Their friendship and bellies grew. The policeman ate twice as many donuts and drank half as much coffee as the fisherman. If the total number of donuts and cups of coffee purchased by the policeman is 1094, and for the fisherman is 730, how many donuts and cups of coffee did the *policeman* eat and drink?

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5. A man and wife need a million dollars to buy a house in California. Right now, the sum of the man and wife's salaries is \$123,456.00. For their salaries to add to one million, the man will have to earn 9 times his current salary and the woman will have to earn \$16,176 more than 4 times her current salary. What will their salaries have to become?

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6. Young Ann was sometimes good and sometimes bad. Since her parents always knew when she told the truth or when she didn't, they would give her \$2 when she told the truth and charge her \$5 when she fibbed. After telling the truth 9 less than $\frac{5}{3}^{rds}$ as many times as she lied, she owed her parents \$78. How many times did she tell the truth? Is she more bad than good or more good than bad?

Answers

1. No solution *(i.e. the lines are parallel)*

2. ∞ number of solutions *(i.e. the lines are the same)*

3. $(11, -3)$ *(this is the intersection point of the two lines)*

4. The policeman ate 972 donuts and drank 122 cups of coffee.

5. The man's salary will have to become \$882,000 and the wife's will have to become \$118,000.

6. Ann told the truth 51 times and fibbed 36 times; she's more good than bad :-)