Englische Übungen zu Lineare Gleichungen mit zwei Variablen

1. Solve the system of equations

a. I: $x + 4y = 14$
II: $5x + 2y = 19$

b. I: $7a + 2b = 22$
II: $3a + 4b = 11$

c. I: $5m + 3n = 11$
II: $4m + 6n = 16$

d. I: $7x + 5y = 32$
II: $3x + 4y = 23$

2. Find the numbers using a system of equations.

a. Find two numbers whose sum is 9 and whose difference is 6.

b. Twice one number plus the other number add up to 13. The sum of the numbers is 10.

c. Twice the larger number plus three times the smaller number is 19. The difference between the numbers is 2.

3. Given is one equation. Find another equation such that the system of the given equation and your equation has 1) one 2) no 3) infinitely many solutions.
   a. $2x + 3x = 10$
   b. $4a - b = 4$

4. Stephen bought 4 CDs and 2 DVDs for a total of 69 € while Amanda bought 3 CDs and 3 DVDs for a total of 66 €. Assuming all CDs are the same prize and all DVDs are the same prize find the cost of each.

5. 76 football fans want to visit an away game. A minibus can take 12 people, a car can take 5 people. How many of each are needed if 11 vehicles are taken?

6. A train travels from London to Cambridge (distance 80 km) at a speed of 120 km/h, leaving London at 8:00 a.m. Another train travels from Cambridge to London at 180 km/h, leaving Cambridge at 8:15 a.m. Determine when and how far from London these two trains meet
   a. graphical
   b. computational

Vocabulary

Englisch	Deutsch
system of equations	Gleichungssystem
infinitely many	unendlich viele
to assume	annehmen
away game	Auswärtsspiel
vehicle	Fahrzeug
graphical	graphisch, zeichnerisch
computational	rechnerisch

Solutions

1.

a. $x = \frac{8}{3},\ y = \frac{17}{6}$
b. $a = 3, b = \frac{1}{2}$
c. $m = 1, n = 2$
d. $x = 1, y = 5$

2.

a. $x = 7{,}5$ and $y = 1{,}5$
b. $x = 3$ and $y = 7$
c. $x = 5$ and $y = 3$

3. Possible options are (there are others as well):

a. one solution: $x + y = 4$
no solution: $2x + 3y = 9$
infinitely many solutions: $4x + 6y = 20$
b. one solution: $2a - b = 0$
no solution: $4a - b = 5$
infinitely many solutions: $8a - 2b = 8$

4. A CD is 12,50 € and a DVD is 9,5 €.

5. Eight cars and three minivans.

6. Let x be the time elapsed since 8 a.m. (in min) and y the distance from London (in km). Then the first train is described by $y = 2x$ and the second one by $y = 125 - 3x$. They meet after $x = 25$ min (i.e., at 8:25 am) and distance $y = 50$ km from London.