Solution key

System of Equations

GRAPHING METHOD

Find the point of intersection for each system of equations using the graphing method.

(4,7) 1. $Y = 3x - 5$
$Y = 6x - 17$

(5,2) 2. $Y = x - 3$
$Y = 2x - 8$

3. $Y = 4x + 14$
$Y = 10 + 2x$ (-2,6)

4. $Y = 3x$
$Y = 7x - 6$ (3/2, 9/2)

COMPARISON METHOD

Find the point of intersection for each system of equations using the comparison method.

(4,7) 5. $Y = 3x - 5$
$Y = 6x - 17$

(5,2) 6. $Y = x - 3$
$Y = 2x - 8$

(-2,6) 7. $Y = 4x + 14$
$Y = 10 + 2x$

8. $Y = 3x$
$Y = 7x - 6$ (3/2, 9/2)

9. $X = y - 2$
$X = 2y - 12$ (8,2)

10. $2x = y - 8$
$2x = -2y + 34$ (6,14)

WORD PROBLEMS

For each problem, identify the variables, make a system of equations and solve the system by comparison.

: # of rides
: cost

11. Motorcycle Company A charges a one-time membership fee of 210$ and 20$ every time you ride. Motorcycle Company B charges 35$ every time you ride, (by) only charges 105$ for their membership. How many times would you have to ride at each for the total cost to be the same?

A: $y = 20x + 210$
B: $y = 35x + 105$
7 times

12. Grace and Jane each go out babysitting on Friday night. Grace gets paid 9$ per hour and receives a tip of 15$ at the end of the night. Jane gets paid 10$ per hour and receives a tip of 9$. If they each made the same amount, then how many hours did they work and how much money did they earn?

x: # of hrs
y: Salary
$y = 9x + 15$
$y = 10x + 9$
6 hours, 69$

13. Carole receives a weekly base salary of 120$ plus a 10$ commission for every item sold. Her friend Jessica receives a weekly base salary of 150$ and an 8$ commission for every item sold. How many items must they each sell to earn the same weekly salary?

x: # of items
y: Salary
$y = 10x + 120$
$y = 8x + 150$
5 items

14. The Kandev car rental company charges a basic fee of 15$ plus 10 cents per km. The Rak car rental company charges a basic fee of 25$ plus 5 cents per km. What distance must be traveled for the two companies to charge the same amount?

x: # of km
y: Rental cost
C_1: $y = 0.10x + 15$
C_2: $y = 0.05x + 25$
200 km

15. A school principal has the choice of two transportation companies to organize a field trip for the students. The first company charges a base amount of 120$ plus 1.50$ per student. The second company charges a base amount of 80$ plus 2$ per student. How many students must come for the transportation costs to be the same for both companies?

x: # of students
y: Rental Charge
C_1: $y = 1.50x + 120$
C_2: $y = 2x + 80$
800 students