

Chapter 8 — Systems of Equations

Worksheet C: Mixed Application

Name: _____ Grade: _____ Date: _____

1. A theatre sells adult tickets for \$14 and child tickets for \$9. It sells 16 tickets for \$189. How many of each type were sold?

2. A farm has chickens and goats. There are 23 animals and 70 legs. How many chickens and goats are there?

3. A taxi costs $C = 2.25k + 5$. Another costs $C = 1.50k + 11$. After how many kilometres do the costs match?

4. Solve $y = 3x + 2$ and $2x + y = 22$. Then check both equations.

5. Solve $4x - y = 12$ and $x + y = 8$. Then state the method used.

6. Classify $2x + y = 9$ and $4x + 2y = 18$. Explain what the graph looks like.

7. Classify $x - y = 4$ and $2x - 2y = 11$. Explain what the graph looks like.

8. Two numbers have a sum of 54. One number is three times the other. Find both.

9. A museum charges \$11 for adults and \$6 for students. Thirty visitors pay \$235. How many adults and students attended?

10. Solve $y = -2x + 15$ and $3x + y = 17$.

11. Solve $2x + 5y = 31$ and $3x - 5y = 14$.

12. A student says the solution to $y = x + 4$ and $y = x - 2$ is $(0, 4)$. Is the student correct? Explain.

13. Write a system with solution $(4, -1)$. Check it in both equations.

14. Non-routine diagnostic: a student substitutes $y = x - 3$ into $2x - 4y = 10$ and writes $2x - 4x - 3 = 10$. Identify the error, correct the substitution, and solve.

15. Non-routine diagnostic: one system simplifies to $0 = 0$. Another simplifies to $0 = 7$. Explain what each result means on a graph.
