Name: Date:
Instructor: Section:

Practice Set 4.2

Use the choices to fill in each blank.

no	consistent	same	parallel	point
one	inconsistent	different	intersection	line
infinite	dependent	perpendicular	intersecting	plane(s)

1. The graph of an equation of the form $ax + by + cz = d$, for real numbers a, b, c, and d with a, b, and c nonzero, is a _____.

2. The solution to a system of linear equations in three variables is the _____ of the three _____.

3. When the result of solving a system of equations in three variables is a false statement, the system is _____ and has _____solution(s). This means that at least two of the planes are _____.

4. If, when solving a system of equations in three variables. you obtain a statement that is always true, such as $0 = 0$, the system is _____ and has _____ solution(s). This means that all three equations represent the same _____ or that the three planes intersect in a single _____.

Solve by substitution.

5. $x = 3$
$2x + y = 5$
$3x - 2y - 2z = 3$

6. $-x + 2y - 4z = 16$
$2y - z = 3$
$4z = -20$

5._____

6._____

7. $5x - 2y = 16$
$-3y = 9$
$-3x + 4y + 5z = 2$

8. $8x - 6y + 3z = -3$
$4x + 3y = 5$
$-3z = 5$

7._____

8._____

Solve using the addition method.

9. $x - 3y = 9$
$3x + 4y = 1$
$2x - 2y - 3z = -2$

10. $3y + 5z = 1$
$x + y + 2z = -2$
$2x + y + 3z = -7$

9._____

10._____

11. $3a - 3b + c = 5$
$-2a + b - 3c = -7$
$a - 2b - c = -3$

12. $r - 2s + t = 2$
$2r + 3s - 4t = -14$
$-2r + s - 2t = -4$

11._____

12._____

Solve using the addition method.

13. $\frac{x}{3}+\frac{y}{4}+z=\frac{19}{12}$
$-\frac{x}{4}+\frac{y}{3}-z=-3$
$\frac{x}{8}-\frac{y}{4}-\frac{z}{4}=1$

14. $x-\frac{3}{5}y-\frac{3}{5}z=-\frac{21}{5}$
$\frac{5}{3}x+y-\frac{3}{7}z=7$
$-\frac{1}{2}x+y-\frac{1}{2}z=0$

13._____

14._____

15. $0.2x - 0.3y + 0.1z = -1.1$
$-0.1x + 0.2y - 0.3z = 1.3$
$0.5x + 0.4y - 0.7z = 4.9$

16. $1.2x - 2.4y + 3.6z = 10.8$
$0.8x + 0.5y - 0.3z = -0.3$
$-0.3x - 0.4y + 0.9z = 1.9$

15._____

16._____

Determine whether the following systems are inconsistent, dependent, or neither.

17. $3x + y + 2z = 3$
$-4x - 3y - 3z = 0$
$2x - y + z = 7$

18. $x - 4y + 5z = -1$
$-3x + 12y - 15z = 3$
$2x + 5y - 3z = 9$

17._____

18._____

19. $3x - 3y + 5z = 17$
$-12x + 7y = -13$
$3x - 2y + z = 6$

20. $3a - 4b + c = 6$
$a + b + c = 1$
$-6a + 8b - 2c = -10$

19._____

20._____

Challenge

Find the solution to the following system of equations.

21. $2a + 3b = -2$
$3a - 2c + d = -8$
$a - c = -3$
$2a - b + d = -3$

22. $q + r - s = 4$
$q + 2r - t = 7$
$2q + 2s + t = -2$
$q + r + s + t = 0$

21._____

22._____