

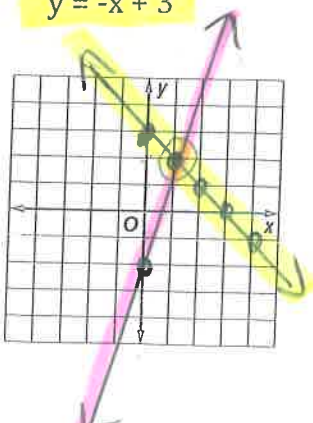
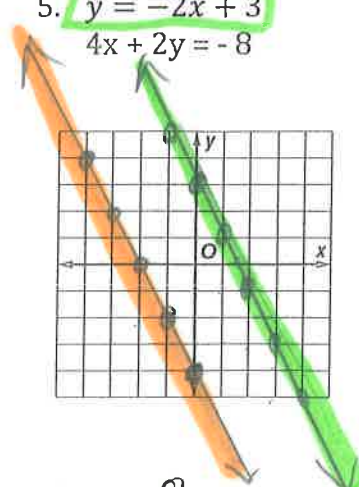
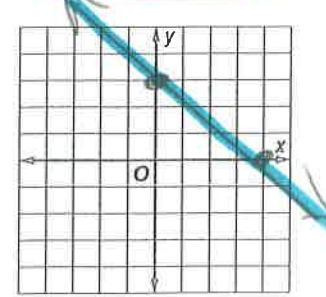
Accelerated Math Grade 8
Digits Topic 6: Systems Test Review

Key

Rewriting Equations in Slope-Intercept Form: Rewrite the following equations in slope-intercept form ($y = mx + b$). By inspecting the equations, determine what type of line(s) the system forms and how many solutions each system has.

1. $y = -6$ $4x + y = 2$ $4x + y = 2$ $-4x \quad -4x$ $y = -4x + 2$ <i>Intersecting</i>	2. $y = \frac{2}{3}x - 5$ $3y = 2x$ $3y = 2x$ $\quad \quad 3$ $y = \frac{2}{3}x$ <i>Same slope; //</i>	3. $3x + y = 3$ $2y = -6x + 6$ $3x + y = 3$ $-3x \quad -3x$ $y = -3x + 3$ $2y = -6x + 6$ $\quad \quad 2$ $y = -3x + 3$ <i>Same Equation; Same Line</i>
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Graphing: Solve each system by graphing. Show all your work. Then determine what type of line(s) the system forms and how many solutions each system has. If the system has one solution, name the solution.

4. $y = 4x - 2$ $y = -x + 3$  <i>Solution: Intersecting (1, 2)</i>	5. $y = -2x + 3$ $4x + 2y = -8$  $4x + 2y = -8$ $-4x \quad -4x$ $2y = -4x - 8$ $\quad \quad 2$ $y = -2x - 4$ <i>Solution: parallel no solution</i>	6. $3x + 4y = 12$ $y = -\frac{3}{4}x + 3$  $3x + 4y = 12$ $-3x \quad -3x$ $4y = -3x + 12$ $\quad \quad 4$ $y = -\frac{3}{4}x + 3$ <i>Solution: Same line ∞ solutions</i>
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Substitution Method: Solve each system using Substitution. Show all your work. Then determine what type of line(s) the system forms and how many solutions each system has. If the system has one solution, name the solution.

7. $y = 3x + 2$ $6x - 2y = -4$ $6x - 2y = -4$ $6x - 2(3x + 2) = -4$ $6x - 6x + -4 = -4$ $-4 = -4$ Same line; ∞	8. $y = 3x - 8$ $y = 4 - x$ $3x - 8 = 4 - x$ $+x \quad +x$ $4x - 8 = 4$ $+8 \quad +8$ $4x = 12$ $x = 3$ $y = 4 - 3$ $y = 1$ Intersecting (3,1)	9. $2x - y = 6$ $x - 3 = \frac{1}{2}y$ $x - 3 = \frac{1}{2}y$ $+3 \quad +3$ $x = \frac{1}{2}y + 3$ $2(\frac{1}{2}y + 3) - y = 6$ $1y + 6 - y = 6$ $6 = 6$ Same Line, ∞
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Elimination Method (Addition/Subtraction): Solve each system using Elimination. Show all your work. Then determine what type of line(s) the system forms and how many solutions each system has. If the system has one solution, name the solution.

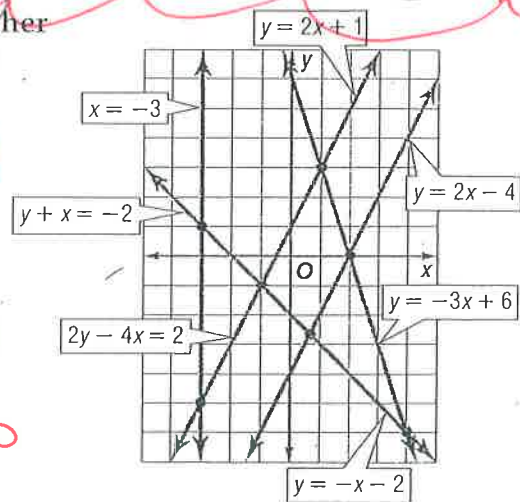
10. $x - y = 14$ $x + y = 20$ $x - y = 14$ $x + y = 20$ $-2y = -6$ $y = 3$ $x + y = 20$ $x + 3 = 20$ $x = 17$ Intersecting (17,3)	11. $-4x - 2y = -2$ $2x - 2y = -14$ $-4x - 2y = -2$ $-2x - 2y = -14$ $-6x = 12$ $x = -2$ $2x - 2y = -14$ $2(-2) - 2y = -14$ $-4 - 2y = -14$ $-2y = -10$ $y = 5$ Intersecting (-2,5)	12. $2x - 3y = -11$ $x + 3y = 8$ $2x - 3y = -11$ $+ x + 3y = 8$ $3x = -3$ $x = -1$ $x + 3y = 8$ $-1 + 3y = 8$ $3y = 9$ $y = 3$ Intersecting (-1,3)
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Elimination Method (Multiplication): Solve each system using Elimination. Show all your work. Then determine what type of line(s) the system forms and how many solutions each system has. If the system has one solution, name the solution.

13. $\begin{cases} 2x - y = 6 \\ 3x + 4y = -2 \end{cases}$ $\begin{array}{r} 8x - 4y = 24 \\ + 3x + 4y = -2 \\ \hline 11x = 22 \\ x = 2 \end{array}$ $\begin{array}{l} 2x - y = 6 \\ 2(2) - y = 6 \\ 4 - y = 6 \\ -y = 2 \\ y = -2 \end{array}$ Intersecting (2, -2)	14. $\begin{cases} x + 5y = 4 \\ 3x - 7y = -10 \end{cases}$ $\begin{array}{r} 3x + 15y = 12 \\ - 3x - 7y = -10 \\ \hline 22y = 22 \\ y = 1 \end{array}$ $\begin{array}{l} x + 5y = 4 \\ x + 5(1) = 4 \\ x = -1 \end{array}$ Intersecting (-1, 1)	15. $\begin{cases} 4x - 7y = 10 \\ 3x + 2y = -7 \end{cases}$ $\begin{array}{r} 12x - 21y = 30 \\ - 12x + 8y = -28 \\ \hline -29y = 58 \\ y = -2 \end{array}$ $\begin{array}{l} 3x + 2y = -7 \\ 3x + -4 = -7 \\ 3x = -3 \\ x = -1 \end{array}$ Intersecting (-1, -2)
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Use the graph at the right to determine whether each system has *no* solution, *one* solution, or *infinitely many* solutions.

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| I, 1 | 16. $\begin{cases} x = -3 \\ y = 2x + 1 \end{cases}$ | 20. $\begin{cases} y = -x - 2 \\ y = 2x - 4 \end{cases}$ | I, 1 |
| S, ∞ | 17. $\begin{cases} y + x = -2 \\ y = -x - 2 \end{cases}$ | 21. $\begin{cases} y = 2x + 1 \\ y = 2x - 4 \end{cases}$ | P, ∅ |
| I, 1 | 18. $\begin{cases} y = -3x + 6 \\ y = 2x - 4 \end{cases}$ | 22. $\begin{cases} 2y - 4x = 2 \\ y = 2x - 4 \end{cases}$ | P, ∅ |
| I, 1 | 19. $\begin{cases} 2y - 4x = 2 \\ y = -3x + 6 \end{cases}$ | 23. $\begin{cases} 2y - 4x = 2 \\ y = 2x + 1 \end{cases}$ | S, ∞ |



Determine the best method to solve each system of equations. Do not solve.

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| Mult. | 24. $\begin{cases} 3x - 4y = -10 \\ 5x + 8y = -2 \end{cases}$ | 27. $\begin{cases} 9x - 8y = 42 \\ 4x + 8y = -16 \end{cases}$ | 30. $\begin{cases} y = 3x \\ 3x + 4y = 30 \end{cases}$ | Sub. |
| Sub. | 25. $\begin{cases} x = 4y + 8 \\ 2x - 8y = -3 \end{cases}$ | 28. $\begin{cases} 2x - 3y = 12 \\ x + 3y = 12 \end{cases}$ | 31. $\begin{cases} 4x - 2y = 14 \\ y = x \end{cases}$ | Sub. |
| Mult. | 26. $\begin{cases} x - y = 2 \\ 5x + 3y = 18 \end{cases}$ | 29. $\begin{cases} y = 2x + 9 \\ 2x - y = -9 \end{cases}$ | 31. $\begin{cases} 6x - y = 9 \\ 6x - y = 11 \end{cases}$ | |
- Sub.

