**MATH 10C UNIT 6** **REVIEW** (Chapter 7 – Systems of Equations)

1. Determine which of the following systems of equations has the given point as the solution to the system.

 a) 3*x* – *y* = 5 b) c) 2*x* – 3*y* = 18 d) 

 *x* + *y* = 11  *x* + 2*y* = -26 

 (4, 7) (-1, 3) (-6, -10) 

2. a) The two equations below represent a **system of linear equations**. Give two meanings of what is meant by the solution to a system of equations.

 *y* = -2*x* + 2

 *y* = *x* – 7

 b) For each equation above, state the x and y-intercepts and the slope of the corresponding graph line.

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| --- | --- | --- | --- |
|  | x-intercept | y-intercept | slope |
| *y* = -2*x* + 2 |  |  |  |
| *y* = *x* – 7 |  |  |  |

 c) On the grid to the right, accurately draw the graph lines corresponding to this system.

1. State the solution to the system of equations.

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3. Solve the system below using substitution.

 *x* – 2*y* = 12

 3*x* – 2*y* = 4

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4. Solve the system below using elimination. Check your solutions.

 3*x* + 2*y* = 2

 *x* + *y* = 3

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5. Solve the system below using any strategy; show your work. Check your solutions.

 2*p* = 6*q* + 9

 *q* – 2*p* = -4

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6. **Without solving**, predict the number of solutions to each pair of linear systems below. Your answers should be either *one solution*, *no solutions*, or *infinitely many solutions*.

 a) *x* + 4*y* = 5

 *x* + 4*y* = -1 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 b) 3*x* + *y* = 9

 12*x* + 4*y* = 36 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 c) 2*x* – 3*y* = 6

 2*x* + 3*y* = 10 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7. One equation in a system is given by *y* = -3*x* + 8. Write a second linear equation so that the resulting system has exactly one solution. Explain your reasoning.

8. One equation in a system is given by y = 5x – 9. Write a second linear equation so that the resulting system contains no solutions. Explain your reasoning.

9. Use your graphing calculator to solve each of the systems below. Give your answers as decimals, correct to two decimal places. CLEAR YOUR CALCULATORS FIRST. (If you are later working on trig problems, remember to reset your calculators to DEGREES.)

 a) *y* = -3*x* + 5

 *y* = 4*x* + 9

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 b) *x* + 7*y* = 15

 2*x* – 3*y* = 6

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10. In Manitoba, teens watch about 11 more hours of television each week than do adults. The total average time watched per week by both teens and adults is about 37 h. About how many hours per week do teens and adults watch?

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11. On Vancouver Island, the costs of taking vehicles by ferry from Mill Bay in Saanich to Brentwood Bay in Victoria is $15.50 for a car and $7.75 for a motorcycle. On one trip, a total of $612.25 was collected in fares for cars and motorcycles, with a total of 44 vehicles on the ferry. How many of each were on the ferry?

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