

## FOMP 10 Chapter 9 Review Pack v1

### Short Answer

#### Level 1-2 Questions

1. In the linear system  $y = 5$  and  $x + y = 2$ , what is the point of intersection?
2. What is the solution to the linear system  $2x - 2y = -10$  and  $5y = -5x + 5$ ?
3. What ordered pair represents the solution to the linear system  $y = 7x - 37$  and  $7x + 10y = 92$ ?
4. In the linear system  $x - 7y = 28$  and  $x + 7y = -28$ , what is the value of  $y$  at the point of intersection?
5. Using the elimination method, the solution to the linear system  $-5x + y = -19$  and  $4x + y = 26$  is
6. Ruby is 10 years older than Sam. The sum of their ages is 52. How old is Sam?
7. What is the solution to the linear system  $3x - y = 10$  and  $-x + y = -4$ ?

#### Level 3-4 Questions

8. Using the substitution method, the solution to the linear system  $y = -6x - 100$  and  $-x + y = 12$  is

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9. Use the substitution method to determine the solution to the linear system  $y = 4x + 34$  and  $y = -2x - 26$ .
  
10. What is the solution to the linear system  $y = -5x - 21$  and  $y = 7x + 15$ ?
  
11. Determine the solution to the linear system  $y = 3x - 13$  and  $y = 5x - 19$ .
  
12. A charity ball costs \$2100 for the banquet hall rental plus \$60 per person for food. If tickets to the event are \$108 each, how many tickets must be sold before the organizers start to make a profit?  
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13. Sandy's family decides to rent a hall for her retirement party. Emerald Hall charges \$800 for the hall and \$20 per meal. Lilac Place charges \$500 for the hall and \$24 per meal. Determine the approximate number of guests for which the charges are the same at both locations.  
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14. The perimeter of a rectangle is 36 m. The length is 3 m less than twice the width. What is the length of the rectangle?  
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15. The sum of two numbers is 175 and their difference is 1. What are the two numbers?  
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**Level 5-6 Questions**

21. Raoul and Kourosh run a buffet-style restaurant. It costs them \$4200.00 for rent and utilities each month, plus an average of \$8.00 per person for food. If they charge their customers \$20.00 each, what are the costs at the point where the costs equal the revenue?
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22. Marie had \$40 000.00 to invest. She invested part of it in bonds paying 1.2% per annum and the remainder in a second mortgage paying 2.8% per annum. If the total interest after 1 year was \$960.00, how much did Marie invest at each rate?
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23. Larry's rate of pay per hour is  $\frac{3}{4}$  of the amount that Poonam makes per hour. Their combined salary after a 40-h workweek is \$1960. What is Larry's hourly rate of pay?
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24. The three lines  $y = x + 2$ ,  $y = 17 - 2x$ , and  $y = -x + (8)$  intersect to form a triangle. Determine the coordinates of the vertices of the triangle.
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25. For what values of the coefficients  $a$  and  $b$  is the ordered pair  $(3, -3)$  the solution to the linear system  $ax + by = -15$  and  $2ax - 3by = 0$ ?
26. One metal alloy is 25% copper, while another is 50% copper. How much of each alloy should be used to make 2500 g of a metal alloy that is 40% copper?
27. Raylene is making a healthy snack of trail mix to sell as part of a fundraiser for the school hiking club. The mixture will have 1.5 times as many kilograms of raisins as of organic sunflower seeds. Organic sunflower seeds cost \$12/kg and raisins cost \$6/kg. If Raylene has \$126 to spend, what mass of sunflower seeds and of raisins should she buy?
28. A salmon fishing boat on a BC river travelled 60 km upstream in 5 h. It took 4 h to return downstream at the same speed.
- a) Determine the speed of the fishing boat.
  - b) Determine the speed of the river's current.

29. The cost of ride passes to Playland totalled \$455.50 for a group of 11 children and 4 adults. The admission totalled \$398.50 for another group consisting of 9 children and 4 adults.
- Write a linear system to model this problem.
  - What is the admission cost for an adult and for a child?
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30. The new owners of the Festival Restaurant have hired enough staff to serve 33 tables of customers. The fire marshal has rated the restaurant for a limit of 82 customers. If two-seat tables cost \$29.95 each and four-seat tables cost \$39.95 each, how much will the new owners need to spend purchasing tables?
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### Level 7-8 Questions

31. Use substitution to solve the following system of equations.

$$-2x - 3y + 3z = 6$$

$$x + 2z = -7$$

$$y - 3z = 4$$

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32. A rocket is fired down a practice range. The height of the rocket,  $h$ , in metres, depends on the time it has been in flight,  $t$ , in seconds, as shown by the equation  $h = at^2 + bt + c$ . After 10 s, the rocket reaches a height of 1500 m. The height is 2000 m after 20 s and 1500 m after 30 s. What are the values of  $a$ ,  $b$ , and  $c$ ?
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