

Chapter 1 Practice Test

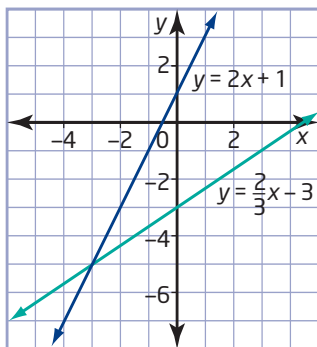
- Translate each sentence into an equation.
 - In a group of 20 people, there are seven more men than women.
 - The total of seven and twice a number gives the same result as three times that number.
- Write a system of equations that can be solved by graphing and then show the solution.

- Use graphing to find the point of intersection of the lines $y = 3x - 22$ and $y = 4x - 29$.
- What is the solution to the following linear system?
 $y = 3x - 22$
 $y = 4x - 29$

- Solve each linear system using the method of substitution. Check each solution.

- $y = 2x - 13$
 $x + 2y = -6$
- $a + b = 5$
 $3a + 4b = 15$
- $x + 3y = 0$
 $3x - 6y = 5$
- $3m - 2n = -12$
 $m - 4n = 8$

- A graph of a linear system is shown. Explain why each of the following is an equivalent linear system to the system shown in the graph.



- $y = 2x + 1$
 $2x - 3y = 9$
- $x = -3$
 $y = -5$
- $4x - 2y + 2 = 0$
 $4x - 6y - 18 = 0$

- Use the method of elimination to solve each linear system. Check each solution.

- $3x + 2y = 19$
 $5x - 2y = 5$
- $4x - 3y = 15$
 $4x + 3y = 5$
- $6k + 5h = 20$
 $3k - 4h = 23$
- $4p - 2q = 6$
 $10p - 3q = -1$

- Solve each linear system. Choose a method and explain why you chose that method. Check each solution.

- $y + 3x = 6$
 $y = 2x + 1$
- $2x - y = 3$
 $4x - y = -1$
- $2x - y = -6$
 $4x + y = -6$
- $6x - 5y = -1$
 $5x - 4y = -1$

- Which is your preferred method for solving linear systems? Explain why. Give two advantages and two disadvantages of the method you prefer.

- A triangle lies on a Cartesian plane. The sides are formed by the intersection of the lines $y = 3x - 1$, $2x + y - 4 = 0$, and $x - 2y = -7$. Find the coordinates of each vertex of the triangle.

- Gregory works half as many hours per week as Paul. Between the two, they work a total of 48 h one week.

- Write an equation to represent the information in the first sentence.
- Write an equation to represent the information in the second sentence.
- Use the method of substitution to find the number of hours worked by each of them.

11. A physics contest has 30 multiple-choice questions. A correct answer gains 4 points, while a wrong answer loses 1 point. Rolly answered every question and scored 55 points. How many questions did he answer correctly?
 12. A swimming pool has a perimeter of 96 m. The length is 3 m more than twice the width. Find the length and width of the pool.
 13. A restaurant that serves a buffet lunch has one price for adults and another price for children under 12. The Jung group has two adults and three children and their bill is \$48.95. The Harvey group has three adults and two children. Their bill is \$52.05. What is the price of the buffet for an adult? for a child?
 14. A total of 27 coins, in nickels and dimes, are in a wallet. If the coins total \$2.15, how many of each type of coin are there?
 15. Candice and Dino operate computer repair services. For a service call, Candice charges \$40 and Dino charges \$50. In addition, they each charge an hourly rate. Candice charges \$35/h, and Dino charges \$30/h. One day, their charges for two service calls were the same. What did they charge and how long did each person work?
 16. Simplify and then solve each linear system.
 - a) $3(x + 1) - 4(y - 1) = 13$
 $5(x + 2) + 2(y + 3) = 0$
 - b) $3c + 0.8d = 1.4$
 $0.5c - 0.4d = 1.4$
 - c) $x + y = 40$
 $\frac{x}{20} - \frac{y}{5} = 1$
 17. Maya inherited \$50 000. She invested part of it in a Guaranteed Investment Certificate (GIC) that paid 5%/year and the rest in a venture capital that returned 10%/year. The total simple interest after 1 year was \$4000. How much did she invest at each rate?
 18. Chemex Lab needs to make 500 L of a 34% acid solution for a customer. The lab has 25% and 50% acid solutions available to make the order. How many litres of each should be mixed to make the 34% solution?
 19. Carl travelled the 1900 km from his home in Eastern Ontario to Winnipeg. He travelled by bus to Toronto at an average speed of 60 km/h and then flew to Winnipeg at an average speed of 700 km/h. His total travelling time was 7 h. How many kilometres did he travel by bus? How far did he travel by airplane?
- Achievement Check**

20. a) Choose an algebraic method to solve the following linear system. Explain why you chose this method.

$$\frac{x}{2} - \frac{2y}{3} = \frac{7}{3}$$
$$\frac{3x}{2} + 2y = 5$$

b) Use the method you chose to solve the system. Check your solution.

c) A fishing boat took 3 h to travel 36 km upstream, against the current, on the St. Lawrence River. The same trip downstream only took 2 h. What is the average speed of the fishing boat in still water? What was the speed of the river current?