

For all questions, provide complete solutions. Be neat and detailed.

Knowledge and Understanding

1. Is the ordered pair $(3, -5)$ the solution to the linear system defined by $2x + 5y = -19$ and $6y - 8x = -54$?

Justify your answer.

2. Solve by substitution.

a) $3x + y = 5$

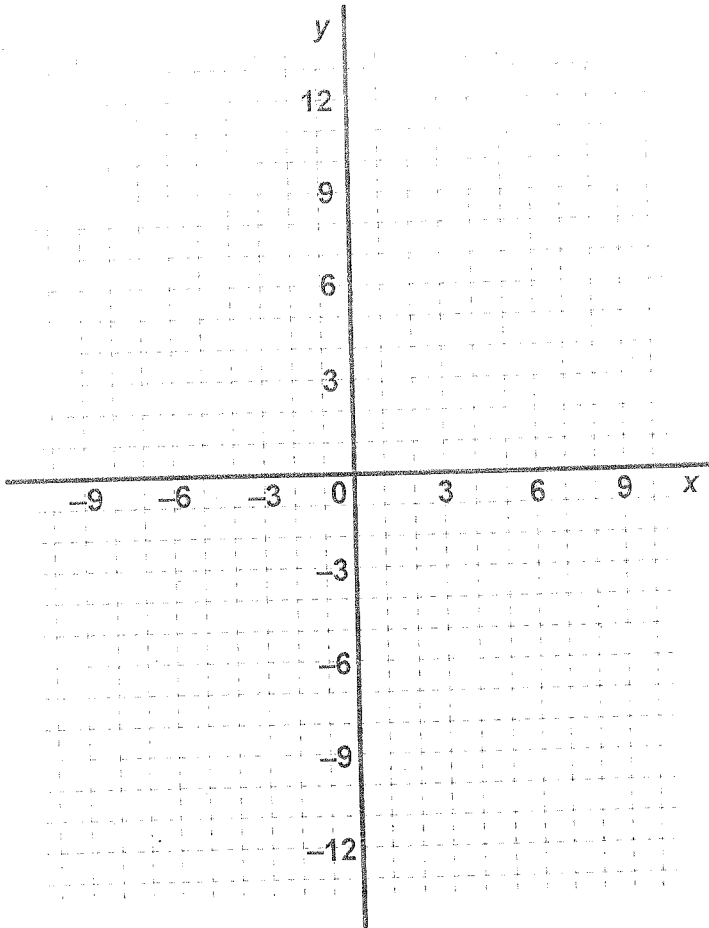
$$x - 2y = 11$$

3. Solve by elimination.

a) $a - 15b = 3$

$$3b + a = 21$$

4. a) Determine graphically the point of intersection between the lines defined by $y = -2x + 6$ and $16 = 10x - 2y$.



- b) Check your solution.

Application

5. Paul is a cashier at a grocery store. He has a total of \$580 in bills. He has 76 bills, consisting of \$5 bills and \$10 bills. How many of each type does he have?
6. A traffic helicopter pilot finds that with a tailwind her 120 km trip away from the airport takes 30 min. On her return trip to the airport, into the wind, she finds that her trip is 10 min longer. What is the speed of the helicopter? What is the speed of the wind?
7. Shoshana is comparing the monthly costs from two Internet service providers. Netright charges a monthly fee of \$10 plus \$0.75 per hour spent on-line. Webz charges a monthly fee of \$5 plus \$1 per hour. Determine when the monthly costs are the same. If Shoshana plans to use the Internet for at least 35 hours each month which provider should she choose and why?

8. Assume a linear system has no solution. Determine two possible equations that could represent both lines in the system.

Thinking/Inquiry

9. Solve the systems.

a) $12(x - 2) - (2y - 1) = 14$

$$5(x - 1) + 2(1 - 2y) = 14$$

SOLUTIONS

1. YES 2. $(3, -4)$ 3. $(18, 1)$ 4. $(2, 2)$ 5. 36 \$5 bills ; 40 \$10 bills
6. helicopter speed = 210 km/h wind speed = 30 km/h 7. 20 hours, Netag
8. equal slope ; different y-intercept 9. $(3, -\frac{1}{2})$