

Unit 5: Linear Relationships

ADVANCED • SET 2

Name: _____

Date: _____

Solve each problem and write your final answer in simplest form; give coordinate pairs as (x, y) and fractions like $-5/2$.

1. Find the slope of the line passing through the points $(-5, 17)$ and $(7, -13)$.

Answer: _____

2. The variable y is directly proportional to x . When $x = 9.5$, $y = -34.2$. Find the constant of proportionality k .

Answer: _____

3. A line has slope $-3/4$ and passes through the point $(4, -7)$. Find its y -intercept b .

Answer: _____

4. Solve the system by substitution: $y = 2x - 5$ and $3x + 2y = 18$. Give the solution as (x, y) .

Answer: _____

5. Solve the system by elimination: $7x + 4y = 23$ and $3x - 5y = 30$. Give the solution as (x, y) .

Answer: _____

6. Find the x -coordinate of the x -intercept of the line $3x + 7y = -42$.

Answer: _____

7. A relationship contains the points $(3, 10)$, $(7, 22)$, and $(12, 37)$. Is y proportional to x ? Answer yes or no.

Answer: _____

8. A line passes through the points $(6, -1)$ and $(10, 5)$. Find its y -intercept b .

Answer: _____

9. A machine fills 7 bottles every 2.5 seconds at a constant rate. How many bottles does it fill in 90 seconds?

Answer: _____

10. At a store, 5 notebooks and 3 pens cost \$19, while 2 notebooks and 4 pens cost \$16. Find the cost of one pen, in dollars.

Answer: _____

11. The point $(k, 6)$ lies on the line $4x - 7y = -6$. Find k .

Answer: _____

12. A line passes through $(2, 9)$ and $(-4, -3)$. Find the slope of any line perpendicular to it.

Answer: _____