

# The Weekly Rigor

No. 138

“A mathematician is a machine for turning coffee into theorems.”

February 11, 2017

## SAT Math Test Problem Children: Systems of Linear Equations

(Part 6)

22.

$$\begin{aligned}y &= x + 5 \\ 3x - 4y &= 10\end{aligned}$$

The system of equations above consists of two equations, and the graph of each equation in the  $xy$ -plane is a line. Which of the following statements is true about these two lines?

- A) The lines are parallel.
- B) The lines are the same.
- C) The lines are perpendicular.
- D) The lines intersect at  $(-30, -25)$ .

23.

$$\begin{aligned}y &= 2x - 6 \\ x + 2y &= 16\end{aligned}$$

The system of equations above consists of two equations, and the graph of each equation in the  $xy$ -plane is a line. Which of the following statements is true about these two lines?

- A) The lines are parallel.
- B) The lines are the same.
- C) The lines are perpendicular.
- D) The lines intersect at  $(2, 2)$ .

24.

$$\begin{aligned}y - x &= 2 \\ 3x - 3y &= 9\end{aligned}$$

The system of equations above consists of two equations, and the graph of each equation in the  $xy$ -plane is a line. Which of the following statements is true about these two lines?

- A) The lines are parallel.
- B) The lines are the same.
- C) The lines are perpendicular.
- D) The lines intersect at  $(2, 9)$ .

25.

$$\begin{aligned}y &= x - 5 \\ -5x - 5y &= 10\end{aligned}$$

The system of equations above consists of two equations, and the graph of each equation in the  $xy$ -plane is a line. Which of the following statements is true about these two lines?

- A) The lines are parallel.
- B) The lines are the same.
- C) The lines are perpendicular.
- D) The lines intersect at  $(-5, 10)$ .

### ANSWERS

1. $(4, -2)$	6. $(-1, 6)$	11. C	16. $\frac{1}{3}$	21. A
2. $(0, 5)$	7. $(-112, -264)$	12. D	17. $\frac{3}{2}$	22. D
3. $(2, -2)$	8. $(12, 2)$	13. D	18. $\frac{30}{7}$	23. C
4. $(7, -16)$	9. $(3, -8)$	14. C	19. C	24. A
5. $(2, -2)$	10. $(1, -2)$	15. $\frac{3}{4}$	20. B	25. C

“Only he who never plays, never loses.”