- A line with slope 3 intersects a line with slope 5 at the point $(10, 15)$. What is the distance between the x-intercepts of these two lines?

(A) 2 **(B)** 5 **(C)** 7 **(D)** 12 **(E)** 20

2003 AMC 10 B, Problem #11— "Use point-slope form for a line"

- **Solution (A)** The two lines have equations

$$y - 15 = 3(x - 10) \quad \text{and} \quad y - 15 = 5(x - 10).$$

The x-intercepts, obtained by setting $y = 0$ in the respective equations, are 5 and 7. The distance between the points $(5, 0)$ and $(7, 0)$ is 2.

Difficulty: Medium

NCTM Standard: Geometry Standard for Grades 9–12: Use Cartesian coordinates to analyze geometric situations.

Mathworld.com Classification:
Geometry > Coordinate Geometry > x-Intercept