

Coordinate Geometry & Lines

Foundation to Challenge

Practice should make the test feel easier, not merely familiar.

Work without the answer key first. Check answers through the SAT Practice Library after completing the set.

FOUNDATION

1 Which equation represents the line through $(0, 7)$ and $(7, 0)$?

- A. $x = 7$
- B. $y = 7$
- C. $y = x - 7$
- D. $y = -x + 7$

STANDARD

2 Line r passes through $(k, 2k + 1)$ and $(7, 20)$. If the slope of r is 3, what is k ?

FOUNDATION

3 A line has slope $\frac{2}{5}$ and passes through $(1, -3)$. Which point also lies on the line?

- A. $(6, -1)$
- B. $(6, 1)$
- C. $(-4, -1)$
- D. $(11, 2)$

STANDARD

4 The line $ax + 4y = 24$ has an x -intercept twice its y -intercept. What is a ?

- 5 A line passes through $(-1, 4)$ and $(4, 14)$. What is its y-intercept?

- 6 Line m has slope $\frac{3}{4}$ and passes through $(2, 5)$. Which equation could represent a perpendicular line n through the same point?

A. $y = -\left(\frac{4}{3}\right)x + \frac{23}{3}$

B. $y = -\left(\frac{3}{4}\right)x + \frac{13}{2}$

C. $y = \left(\frac{4}{3}\right)x + \frac{7}{3}$

D. $y = -\left(\frac{4}{3}\right)x + 5$

FOUNDATION

- 7 A line has x-intercept -3 and y-intercept -6 . What is its slope?

STANDARD

- 8 Points $(-2, 4)$ and $(7, 10)$ lie on line l . Which point is also on l ?

A. $(1, 6)$

B. $(4, 7)$

C. $(10, 11)$

D. $(13, 15)$

- 9 A line $y = mx + b$ has positive slope m and negative y -intercept b . Which statement must be true?
- A. $mb < 0$
 - B. $mb > 0$
 - C. $mb = 0$
 - D. $m + b = 0$

- 10 The line $y = -3x + 1$ is perpendicular to line l , and the two lines have the same y -intercept. Which equation could represent l ?
- A. $y = \left(\frac{1}{3}\right)x + 1$
 - B. $y = 3x + 1$
 - C. $y = -\left(\frac{1}{3}\right)x + 1$
 - D. $y = \left(\frac{1}{3}\right)x - 1$

STANDARD

- 11 A line has slope $\frac{2}{3}$ and y -intercept 4. What is the equation of the perpendicular line through $(3, 2)$?
- A. $y = -\left(\frac{3}{2}\right)x + \frac{13}{2}$
 - B. $y = -\left(\frac{2}{3}\right)x + 4$
 - C. $y = \left(\frac{3}{2}\right)x - \frac{5}{2}$
 - D. $y = -\left(\frac{3}{2}\right)x + 2$

FOUNDATION

- 12 A line of slope $\frac{3}{5}$ passes through $(2, 1)$ and $(x, 7)$. What is x ?

ADVANCED

- 13 The line $ax - \left(\frac{1}{2}\right)y = 7$ passes through $(3, 4)$. What is the x-coordinate of its x-intercept?

FOUNDATION

- 14 Line l passes through $(0, -2)$ and is parallel to $y = 5x + 7$. If l also passes through $(d, 8)$, what is d ?

- 15 Which equation represents the line parallel to the y-axis and 5 units left of it?

- A. $x = -5$
- B. $x = 5$
- C. $y = -5$
- D. $y = 5$

STANDARD

- 16 A line through the origin passes through (a, b) , where $a > b > 0$. Which could be its slope?

- A. $\frac{3}{5}$
- B. $\frac{5}{3}$
- C. 1
- D. $-\frac{3}{5}$

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Two perpendicular lines have slopes $\frac{a}{b}$ and $\frac{d}{e}$. If $0 < \frac{a}{b} < 1$, which must be true?

A. $\frac{d}{e} < -1$

B. $-1 < \frac{d}{e} < 0$

C. $0 < \frac{d}{e} < 1$

D. $\frac{d}{e} > 1$

FINISHED?

Check your answers online

aryalanupme.github.io/sat-coordinate-geometry-lines.html

Do not stop at “wrong.” Identify why it was wrong: concept, algebra, arithmetic, interpretation, calculator choice, or timing.

I do not correct the answer first. I correct the reason.

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