

G.GPE.B.5: Parallel and Perpendicular Lines 4a

- 1 What is the slope of a line perpendicular to the line whose equation is $y = 3x + 4$?
 - 1) $\frac{1}{3}$
 - 2) $-\frac{1}{3}$
 - 3) 3
 - 4) -3

- 2 What is the slope of a line perpendicular to the line whose equation is $y = -\frac{2}{3}x - 5$?
 - 1) $-\frac{3}{2}$
 - 2) $-\frac{2}{3}$
 - 3) $\frac{2}{3}$
 - 4) $\frac{3}{2}$

- 3 What is the slope of a line perpendicular to the line whose equation is $2y = -6x + 8$?
 - 1) -3
 - 2) $\frac{1}{6}$
 - 3) $\frac{1}{3}$
 - 4) -6

- 4 What is the slope of a line perpendicular to the line whose equation is $5x + 3y = 8$?
 - 1) $\frac{5}{3}$
 - 2) $\frac{3}{5}$
 - 3) $-\frac{3}{5}$
 - 4) $-\frac{5}{3}$

- 5 What is the slope of a line that is perpendicular to the line whose equation is $3x + 5y = 4$?
 - 1) $-\frac{3}{5}$
 - 2) $\frac{3}{5}$
 - 3) $-\frac{5}{3}$
 - 4) $\frac{5}{3}$

- 6 What is the slope of a line that is perpendicular to the line whose equation is $3x + 4y = 12$?
 - 1) $\frac{3}{4}$
 - 2) $-\frac{3}{4}$
 - 3) $\frac{4}{3}$
 - 4) $-\frac{4}{3}$

- 7 What is the slope of a line that is perpendicular to the line represented by the equation $x + 2y = 3$?
 - 1) -2
 - 2) 2
 - 3) $-\frac{1}{2}$
 - 4) $\frac{1}{2}$

- 8 What is the slope of the line perpendicular to the line represented by the equation $2x + 4y = 12$?
 - 1) -2
 - 2) 2
 - 3) $-\frac{1}{2}$
 - 4) $\frac{1}{2}$

9 What is the slope of a line perpendicular to the line whose equation is $20x - 2y = 6$?

- 1) -10
- 2) $-\frac{1}{10}$
- 3) 10
- 4) $\frac{1}{10}$

10 What is the slope of a line perpendicular to the line whose equation is $3x - 7y + 14 = 0$?

- 1) $\frac{3}{7}$
- 2) $-\frac{7}{3}$
- 3) 3
- 4) $-\frac{1}{3}$

11 The equation of a line is $3y + 2x = 12$. What is the slope of the line perpendicular to the given line?

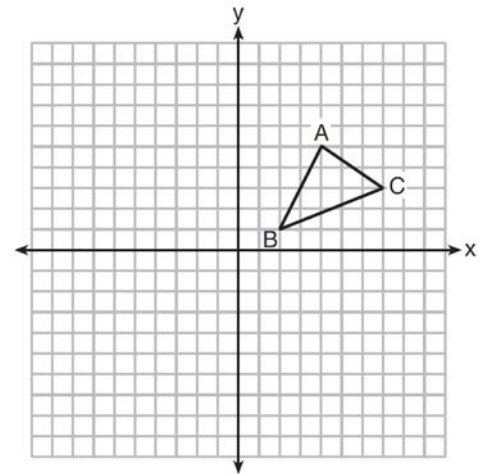
- 1) $\frac{2}{3}$
- 2) $\frac{3}{2}$
- 3) $-\frac{2}{3}$
- 4) $-\frac{3}{2}$

12 The lines whose equations are $2x + 3y = 4$ and $y = mx + 6$ will be perpendicular when m is

- 1) $-\frac{3}{2}$
- 2) $-\frac{2}{3}$
- 3) $\frac{3}{2}$
- 4) $\frac{2}{3}$

13 Find the slope of a line perpendicular to the line whose equation is $2y - 6x = 4$.

14 In the diagram below, $\triangle ABC$ has vertices $A(4,5)$, $B(2,1)$, and $C(7,3)$.



What is the slope of the altitude drawn from A to \overline{BC} ?

- 1) $\frac{2}{5}$
- 2) $\frac{3}{2}$
- 3) $-\frac{1}{2}$
- 4) $-\frac{5}{2}$

15 The slope of \overline{QR} is $\frac{x-1}{4}$ and the slope of \overline{ST} is $\frac{8}{3}$. If $\overline{QR} \perp \overline{ST}$, determine and state the value of x .

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Answer Section

1 ANS: 2 REF: 061022ge

2 ANS: 4

The slope of $y = -\frac{2}{3}x - 5$ is $-\frac{2}{3}$. Perpendicular lines have slope that are opposite reciprocals.

REF: 080917ge

3 ANS: 3

$2y = -6x + 8$ Perpendicular lines have slope the opposite and reciprocal of each other.

$$y = -3x + 4$$

$$m = -3$$

$$m_{\perp} = \frac{1}{3}$$

REF: 081024ge

4 ANS: 2

The slope of a line in standard form is $-\frac{A}{B}$ so the slope of this line is $-\frac{5}{3}$ Perpendicular lines have slope that are the opposite and reciprocal of each other.

REF: fall0828ge

5 ANS: 4

The slope of $3x + 5y = 4$ is $m = \frac{-A}{B} = \frac{-3}{5}$. $m_{\perp} = \frac{5}{3}$.

REF: 061127ge

6 ANS: 3

$$m = \frac{-A}{B} = -\frac{3}{4}$$

REF: 011025ge

7 ANS: 2

The slope of $x + 2y = 3$ is $m = \frac{-A}{B} = \frac{-1}{2}$. $m_{\perp} = 2$.

REF: 081122ge

8 ANS: 2

The slope of $2x + 4y = 12$ is $m = \frac{-A}{B} = \frac{-2}{4} = -\frac{1}{2}$. $m_{\perp} = 2$.

REF: 011310ge

9 ANS: 2

$$m = \frac{-A}{B} = \frac{-20}{-2} = 10. \quad m_{\perp} = -\frac{1}{10}$$

REF: 061219ge

10 ANS: 2

$$m = \frac{-A}{B} = \frac{-3}{-7} = \frac{3}{7} \quad m_{\perp} = -\frac{7}{3}$$

REF: 081414ge

11 ANS: 2

$$m = \frac{-A}{B} = \frac{-2}{3} \quad m_{\perp} = \frac{3}{2}$$

REF: 061417ge

12 ANS: 3

$$m = \frac{-A}{B} = \frac{-2}{3} \quad m_{\perp} = \frac{3}{2}$$

REF: 011610ge

13 ANS:

$$m = \frac{-A}{B} = \frac{6}{2} = 3. \quad m_{\perp} = -\frac{1}{3}.$$

REF: 011134ge

14 ANS: 4

The slope of \overline{BC} is $\frac{2}{5}$. Altitude is perpendicular, so its slope is $-\frac{5}{2}$.

REF: 061614geo

15 ANS:

$$\frac{x-1}{4} = \frac{-3}{8}$$

$$8x - 8 = -12$$

$$8x = -4$$

$$x = -\frac{1}{2}$$

REF: 011534ge