■ A.

[1] Compute the slope of the line through the points $P(-3, 5)$ and $Q(7, 9)$.

[2] What is the slope of the line $y = 3x - 1$?

[3] At what point does the line $y = 3x - 1$ cross the y-axis? Answer with an ordered pair.

[4] At what point does the line $y = -2x + 3$ cross the x-axis? Answer with an ordered pair.

[5] What is the slope of the line $y = -2$?

[6] What is the slope of the line $x = 3$?

[7] Are the lines $\ell_1 : y = 3x + 5$ and $\ell_2 : y = 2x - \frac{1}{5}$ parallel, perpendicular, or neither? Explain why your answer is correct.

■ B

[1] Write the equation for the line through points $P(2, -3)$, $Q(6, 5)$. Answer in slope-intercept form.

[2] Write the equation for the line through points $P(3, 2)$, $Q(6, -3)$. Answer in standard form.

[3] Write the equation for the line through $P(-2, -3)$ that is parallel to $3x + 9y - 5 = 0$. Answer in standard form.

[4] Line ℓ_2 is perpendicular to line $\ell_1 : y = \frac{2}{3}x - 5$. Line ℓ_2 intersects line ℓ_1 at $P(3, -3)$. Where does ℓ_2 cross the y-axis? Answer with an ordered pair.

Answers

■ **A.**

[1] $\frac{2}{5}$

[2] 3

[3] $(0, -1)$

[4] $(0, 3)$

[5] Zero

[6] Undefined

[7] Niether. Not parallel, because $m_1 = 3 \neq 2 = m_2$. Not perpendicular, because $m_1\, m_2 = (3)\,(2) \neq -1$.

■ **B**

[1] $y = 2\,x - 7$

[2] $5\,x + 3\,y - 7 = 0$

[3] $3\,x + y + 9 = 0$

[4] $\left(0, \frac{3}{2}\right)$