11-03-08-T

Equation of Line (Review)

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[1] Plot the line $3x - 2y - 12 = 0$. Show the intercepts on your graph.

[2] Write the slope and the y-intercept of the line $y = \frac{-2}{9}x - 7$.

[3] Write the slope and the y-intercept of the line $3x + 11y - 21 = 0$.

[4] Find the slope of a line through $P(6, -1)$, $Q(0, 19)$.

[5] Write the equation of the line that is parallel to $7x + 6y - 7 = 0$ and has a y-intercept of -3.
Answer in slope-intercept form.

[6] Are the lines $\ell_1 : 3x + 5y - 2 = 0$ and $\ell_2 : 5x - 3y + 3 = 0$ perpendicular?
You will receive credit for this *only if you show why your answer is correct*.

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

[8] Write the equation of the line through the points $P(-3, 2)$ and $Q(7, -2)$.
Answer in standard form.

[9] Write the equation of the line through the points $P(1, 0)$ and $Q(0, -7)$.
Answer in standard form.

[10] Write the equation of the line through $P(-1, 13)$ and parallel to the line $\ell_1 : y = \frac{-3}{5}x - 7$.
Answer in standard form.

[11] Write the equation of the line through $P(-5, 1)$ and perpendicular to the line $\ell_1 : y = 3x + 2$.
Answer in standard form.

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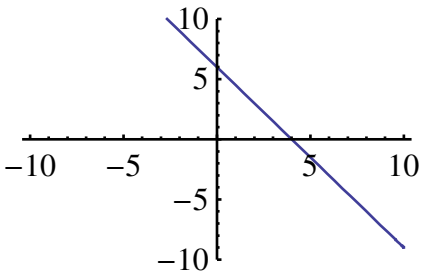
Answers

[1] Plot the line $3x - 2y - 12 = 0$. Show the intercepts on your graph.



This graph is wrong. The y-intercept should be at y = -6.

[2] Write the slope and the y-intercept of the line $y = \frac{-2}{9}x - 7$. Slope is $\frac{-2}{9}$ and y-int is -7.

[3] Write the slope and the y-intercept of the line $3x + 11y - 21 = 0$. Slope is $\frac{-3}{11}$ and y-int is $\frac{21}{11}$.

[4] Find the slope of a line through $P(6, -1)$, $Q(0, 19)$. Slope is $\frac{-10}{3}$.

[5] Write the equation of the line that is parallel to $7x + 6y - 7 = 0$ and has a y-intercept of -3.
Answer in slope-intercept form. $y = \frac{-7}{6}x + \frac{7}{6}$.

[6] Are the lines $\ell_1 : 3x + 5y - 2 = 0$ and $\ell_2 : 5x - 3y + 3 = 0$ perpendicular? $m_1 = \frac{-3}{5}$, $m_2 = \frac{5}{3}$.
Since $\frac{-3}{5} \cdot \frac{5}{3} = -1$, the lines are perpendicular.

[7] Write the equation of the line through the points $P(-2, 3)$ and $Q(2, 3)$.
Answer in standard form. The equation of the line is $y = 3$.

[8] Write the equation of the line through the points $P(-3, 2)$ and $Q(7, -2)$.
Answer in standard form. $2x + 5y = 4$

[9] Write the equation of the line through the points $P(1, 0)$ and $Q(0, -7)$.
Answer in standard form. $7x - y = 7$

[10] Write the equation of the line through $P(-1, 13)$ and parallel to the line $\ell_1 : y = \frac{-3}{5}x - 7$.
Answer in standard form. $y - 13 = \frac{-3}{5}(x + 1) \Longleftrightarrow 3x + 5y = 62$.

[11] Write the equation of the line through $P(-5, 1)$ and perpendicular to the line $\ell_1 : y = 3x + 2$.
Answer in standard form. $y - 1 = \frac{-1}{3}(x + 5) \Longleftrightarrow x + 3y = -2$.