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MAC 1105.1A26
Cyr

Quiz 8
You must show all work to receive full credit!!

Problem 1. (2 pts) Write the equation of the line passing through the points $(-5, 3)$ and $(2, -4)$ in standard form.

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-4-3}{2+(+5)} = \frac{-7}{7} = -1$$

$$y - y_1 = m(x - x_1) \xrightarrow[(x_1, y_1) = (-5, 3)]{\text{using}} y - 3 = -1(x + (+5)) \Rightarrow y - 3 = -(x+5)$$

$$\Rightarrow y - 3 = -x - 5 \Rightarrow y = -x - 2 \quad \text{(slope-intercept)}$$

$$\Rightarrow \boxed{x + y = -2} \quad \text{(standard)}$$

Problem 2. (2 pts) Write the equation of the line passing through the point $(1, 8)$ and perpendicular to $2x + 5y = 4$ in slope-intercept form.

$$2x + 5y = 4 \Rightarrow 5y = -2x + 4 \Rightarrow y = -\frac{2}{5}x + \frac{4}{5} \qquad m = \frac{-2}{5} \Rightarrow m_\perp = \frac{5}{2}$$

$$y - y_1 = m(x - x_1) \Rightarrow y - 8 = \frac{5}{2}(x - 1) \Rightarrow y - 8 = \frac{5}{2}x - \frac{5}{2}$$

$$\Rightarrow y = \frac{5}{2}x - \frac{5}{2} + 8 = \frac{5}{2}x - \frac{5}{2} + \frac{16}{2}$$

$$\Rightarrow \boxed{y = \frac{5}{2}x + \frac{11}{2}}$$

Problem 3. (1 pt) Write the equation of the horizontal line passing through the point $(-1, 6)$.

$$y = 6$$