

Graphic Organizer

for problem-based questions



Restate the problem or question/ determine the type of problem	Find the equation of the line perpendicular to the line $y = -5x + 2$ that passes through the point $(3, -1)$	
Identify Knowns and Unknowns	<u>Known</u> Line 1: $y = -5x + 2$ $\begin{cases} m_1 = -5 \\ b_1 = 2 \end{cases}$ Line 2: passes through $(3, -1)$	<u>Unknown</u> Slope 2: $m_2 = \boxed{}$ Y-int. 2: $b_2 = \boxed{}$
Identify Formula	$y = mx + b$ $\begin{cases} \nearrow \text{y-int.} \\ \searrow \text{slope} \end{cases}$; $m_2 = -\frac{1}{m_1}$	
Other Notes	$\perp$ lines: Slopes are negative reciprocals $m_2 = -1/m_1$	
Find the Answer	Show your work	Explanation
Find m_2 Step 1	$m_2 = -1/m_1$ $\boxed{m_2} = -1/-5 = \boxed{1/5}$	Find $\boxed{\text{Slope of line 2}}$ From slope of line 1
Find b_2 Step 2	$y = \frac{1}{5}x + b$	Set up equation for line 2 with slope of line 2
Step 3	$(3, -1) = (x, y)$ $-1 = \frac{1}{5}(3) + b$	Use the point $(3, -1)$ to find b (y-int.) of line 2
Step 4	$-1 = \frac{3}{5} + b$ $-\frac{3}{5} \quad -\frac{3}{5}$	Simplify
Step 5	$-1 - \frac{3}{5} + b$ $\boxed{-\frac{8}{5}} = \boxed{b}$	Simplify to find $\boxed{b \text{ of line 2}}$
Step 6	$y = \frac{1}{5}x + \left(-\frac{8}{5}\right)$	Use m_2 and b_2 to write equation!
Answer (Examine your answer: is it correct? Is it reasonable?)	$y = \frac{1}{5}x - \frac{8}{5}$	

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Identify Formula		
Other Notes		
Find the Answer	Show your work	Explanation
Step 1		
Step 2		
Step 3		
Step 4		
Step 5		
Step 6		
Answer (Examine your answer: is it correct? Is it reasonable?)		