

Graphic Organizer

How to guide for solving problems using critical thinking.

Organize your Information

Identify what the question is asking you to do.

Identify the knowns and unknowns.

- Knowns - given information in the question
- Unknowns - additional information that leads to the answer

Identify formula, process, or pattern.

Other notes - *any helpful information, prior knowledge, vocabulary to help you answer the question*

Solve the Problem

Write each calculation or step.

Explain calculation or step.

Check your Answer

Did you answer the question asked?

Is your answer reasonable?

How can you check your answer?

Example

Organize

Solve

Problem

Find the equation of the line perpendicular to the line $y = -5x + 2$ that passes through the point $(3, -1)$

Known

Line 1: $y = -5x + 2$ $\left\{ \begin{array}{l} m_1 = -5 \\ b_1 = 2 \end{array} \right.$

Line 2: passes through $(3, -1)$

Unknown

Slope 2: $m_2 = \boxed{}$

Y-int, 2: $b_2 = \boxed{}$

Formula

$y = mx + b$ $\left\{ \begin{array}{l} \text{y-int.} \\ \text{slope} \end{array} \right.$; $m_2 = -\frac{1}{m_1}$

Notes

\perp lines: Slopes are negative reciprocals
 $m_2 = -1/m_1$

Calculation

Explanation

$m_2 = -1/m_1$ $\boxed{m_2} = -1/-5 = \boxed{1/5}$	Find $\boxed{\text{Slope of line 2}}$ From slope of line 1
$y = \frac{1}{5}x + b$	Set up equation for line 2 with slope of line 2
$(3, -1) = (x, y)$ $-1 = \frac{1}{5}(3) + b$	Use the point $(3, -1)$ to find b (y-int.) of line 2
$-1 = \frac{3}{5} + b$ $-\frac{3}{5} - \frac{3}{5}$	Simplify
$-1 - \frac{3}{5} + b$ $\boxed{-\frac{8}{5}} = \boxed{b}$	Simplify to find \boxed{b} of line 2
$y = \frac{1}{5}x + \left(-\frac{8}{5}\right)$	Use m_2 and b_2 to write equation!

Check

$$y = \frac{1}{5}x - \frac{8}{5}$$