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 the 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

## Problem

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

## Known

Line 1: $y=-5x+2, M\_{1}=-5, b\_{1}=2$

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

## Unknown

Slope 2: M2=

Y-int. 2: b2=

## Formula

$Y=Mx+b$, M is the slope, b is the Y-int; $M\_{2}=\frac{-1}{M\_{1}}$

## Notes

1 lines: Slopes are negative reciprocals $M\_{2}=\frac{-1}{M\_{1}}$

# Solve

## Calculation

Find M2. $M\_{2}=\frac{-1}{M\_{1}}$. $M\_{2}=\frac{-1}{-5}=\frac{1}{5}$.

## Explanation

Find slope of line 2 from slope of line 1.

## Calculation

Find b2. $Y=\frac{1}{5}x+b$.

## Explanation

Set up equation for line 2 with slope of line 2.

## Calculation

$\left(3,-1\right)=(x,y)$, $-1=\frac{1}{5}\left(3\right)+b$.

## Explanation

Use the point $(3,-1)$ to find b (y-int) of line 2.

## Calculation

$-1=\frac{3}{5}+b$, $-1-\frac{3}{5}=\frac{3}{5}-\frac{3}{5}+b$.

## Explanation

Simplify.

## Calculation

$-1-\frac{3}{5}=b$, $-\frac{8}{5}=b$.

## Explanation

Simplify to find b of line 2

## Calculation

$$Y=\frac{1}{5}x+(-\frac{8}{5})$$

## Explanation

Use M2 and b2 to write equation!

# Check

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

Additional Info

For more information, visit the Center of Academic Success in B-31 Coates Hall, call (225)578-2872, or visit [lsu.edu/cas](https://lsu.edu/cas/).