



Student Name: _____

Class: _____

Due Date: _____

Introduction to Graphing Linear Equations

Essential Understanding:

- Definition of a linear equation
- Graphing a linear equation on a coordinate plane
- Identifying x-intercept and y-intercept
- Understanding axis symmetry

Complete these concept checks:

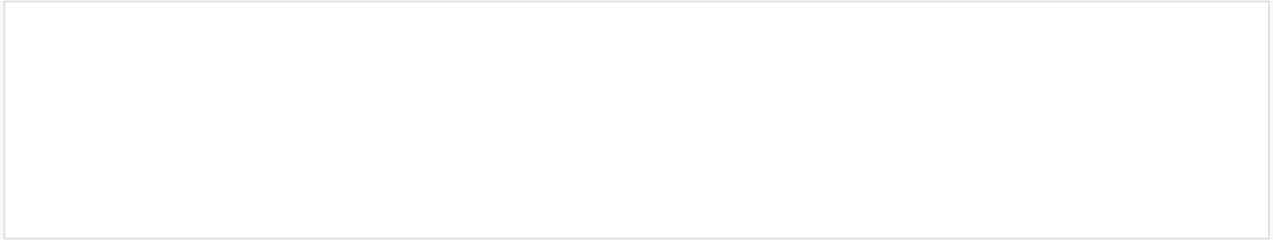
1. Define and give an example of a linear equation

2. Graph the linear equation $y = 2x + 1$ and identify the x-intercept and y-intercept

Graphing Linear Equations in Slope-Intercept Form

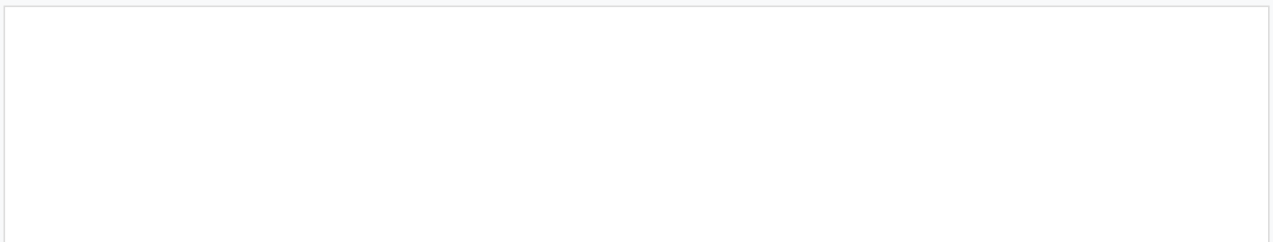
Scenario 1: Graphing a Linear Equation

Graph the linear equation $y = 3x - 2$ and identify the x-intercept and y-intercept



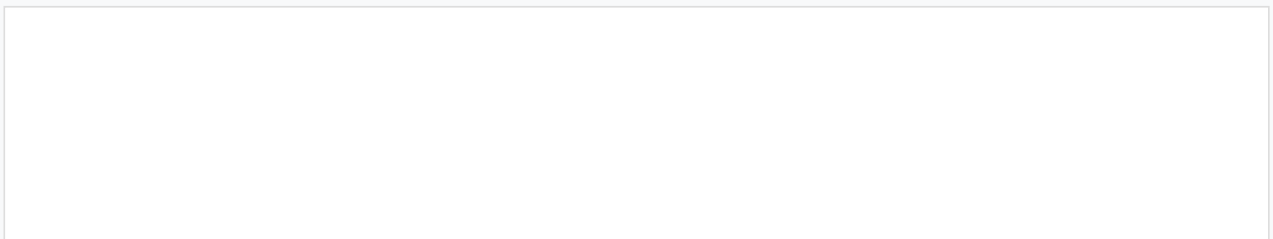
Scenario 2: Identifying Key Features

Identify the x-intercept, y-intercept, and axis symmetry of the linear equation $y = -x + 3$



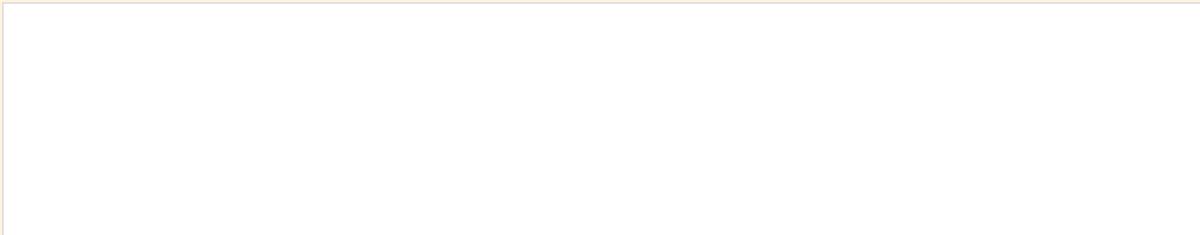
Scenario 3: Real-World Application

A company sells x units of a product at \$2 each. The cost of producing x units is $\$0.50x + \100 . Write a linear equation to represent the revenue and cost. Graph the equations on a coordinate plane and identify the x-intercept and y-intercept

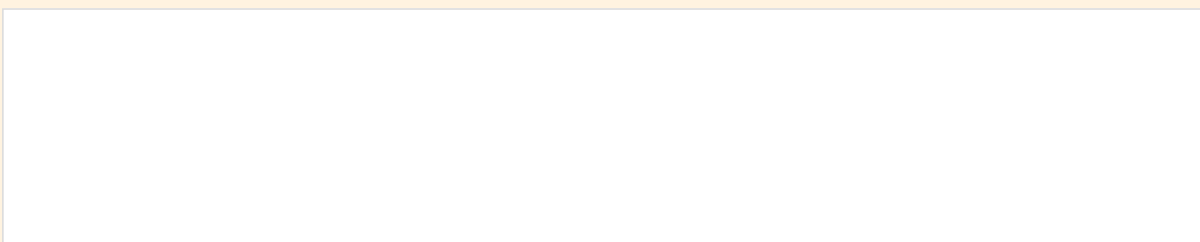


Complete these practice problems:

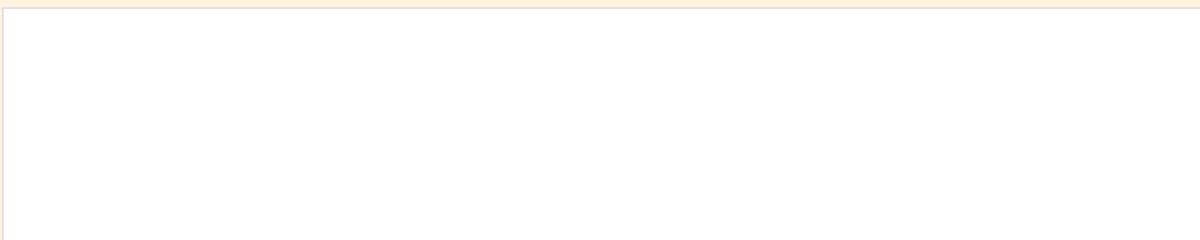
1. Graph the linear equation $y = 2x + 4$ and identify the x-intercept and y-intercept

A blank coordinate plane with x and y axes, intended for graphing the linear equation $y = 2x + 4$.

2. Identify the x-intercept, y-intercept, and axis symmetry of the linear equation $y = x - 1$

A blank coordinate plane with x and y axes, intended for identifying the x-intercept, y-intercept, and axis symmetry of the linear equation $y = x - 1$.

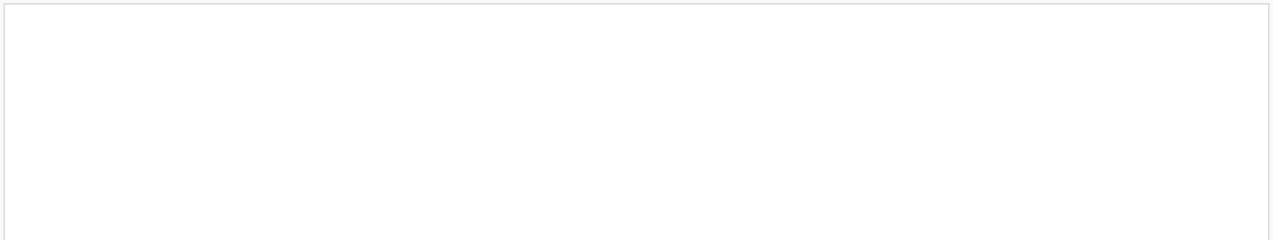
3. Graph the linear equation $y = -2x + 1$ and identify the x-intercept and y-intercept

A blank coordinate plane with x and y axes, intended for graphing the linear equation $y = -2x + 1$.

Challenge Problems

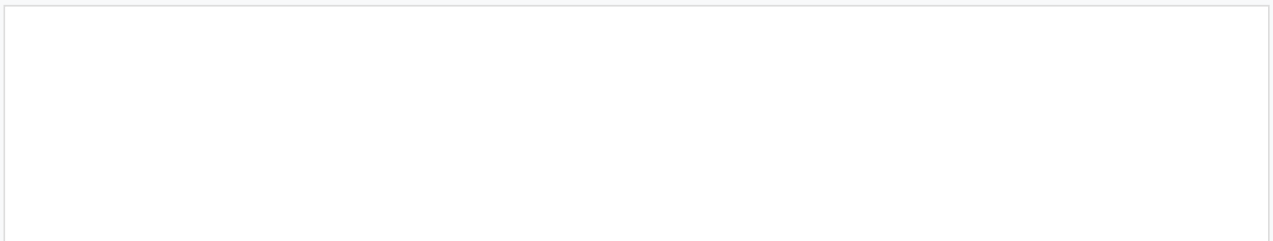
Scenario 1: Challenge Problem

A car rental company charges a base fee of \$20 plus \$0.25 per mile driven. Write a linear equation to represent the cost of renting a car for x miles. Graph the equation on a coordinate plane and identify the x -intercept and y -intercept



Scenario 2: Challenge Problem

A water tank can hold 1000 gallons of water. Water is being pumped into the tank at a rate of 5 gallons per minute. Write a linear equation to represent the amount of water in the tank after x minutes. Graph the equation on a coordinate plane and identify the x -intercept and y -intercept



Choose any combination:

1. Design and explain a linear equation to model a real-world situation

2. Create a graph to represent a linear equation and identify key features

3. Write a short essay on the importance of graphing linear equations in real-world applications

Conclusion:

Congratulations! You have completed this worksheet on graphing linear equations and identifying key features. Remember to practice regularly to reinforce your understanding of these concepts.

Answer Key:

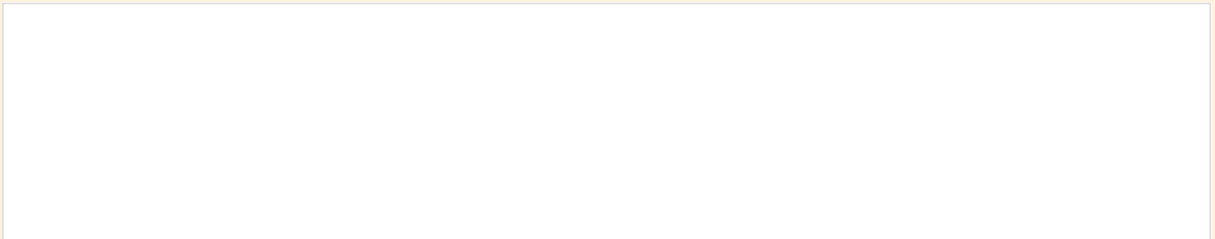
1. Graph: $y = 2x + 1$, x-intercept: $(-0.5, 0)$, y-intercept: $(0, 1)$
2. x-intercept: $(3, 0)$, y-intercept: $(0, 3)$, axis symmetry: $x = -1$
3. Revenue: $y = 2x$, Cost: $y = 0.5x + 100$, x-intercept: $(200, 0)$, y-intercept: $(0, 100)$

Essential Understanding:

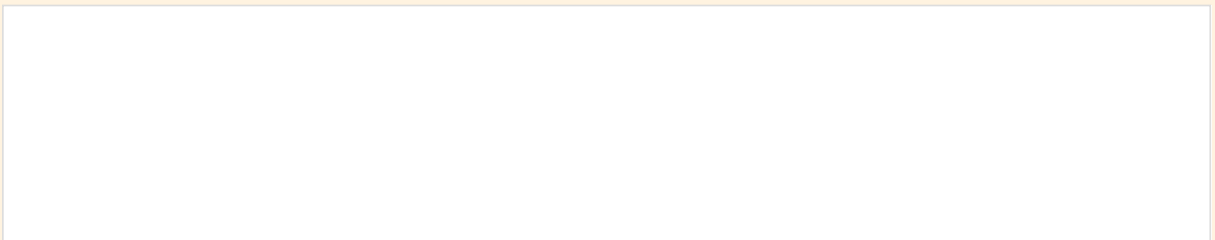
- Using graphing calculators or software to graph linear equations
- Understanding the benefits and limitations of technology in graphing
- Identifying and troubleshooting common errors when using technology

Complete these practice problems:

1. Use a graphing calculator to graph the linear equation $y = 2x + 1$ and identify the x-intercept and y-intercept

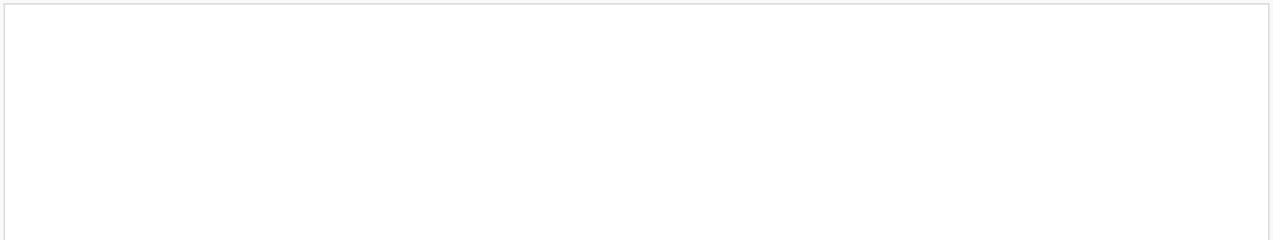
A large, empty rectangular box with a light gray border, intended for the student to show their work for the first practice problem, including the graph and the identification of intercepts.

2. Use graphing software to graph the linear equation $y = x - 2$ and identify the x-intercept and y-intercept

A large, empty rectangular box with a light gray border, intended for the student to show their work for the second practice problem, including the graph and the identification of intercepts.

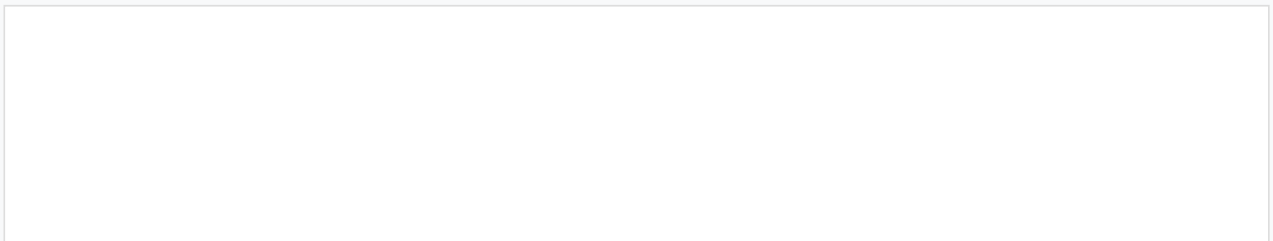
Scenario 1: Cost-Benefit Analysis

A company is considering two different pricing plans for their product. Plan A costs \$10 per unit and has a fixed cost of \$500. Plan B costs \$12 per unit and has a fixed cost of \$300. Write a linear equation to represent the cost of each plan and graph the equations on a coordinate plane



Scenario 2: Distance-Time Graphs

A car travels from City A to City B at an average speed of 60 km/h. The distance between the two cities is 240 km. Write a linear equation to represent the distance traveled over time and graph the equation on a coordinate plane



Case Study: Projectile Motion

A projectile is launched from the ground with an initial velocity of 20 m/s at an angle of 45° . Write a linear equation to represent the height of the projectile over time and graph the equation on a coordinate plane

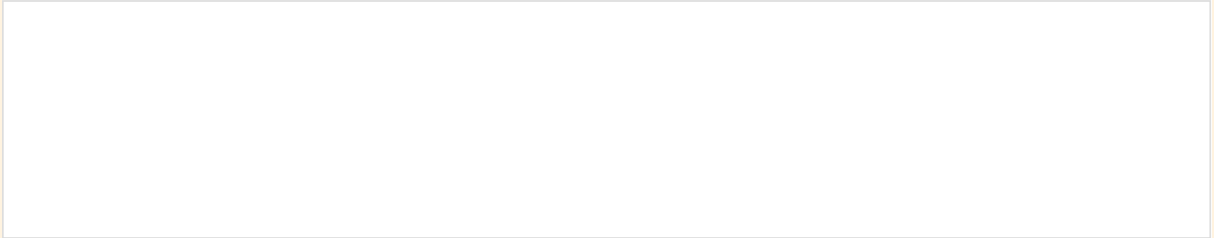
Choose any combination:

1. Research and present on a real-world application of linear equations in science or engineering

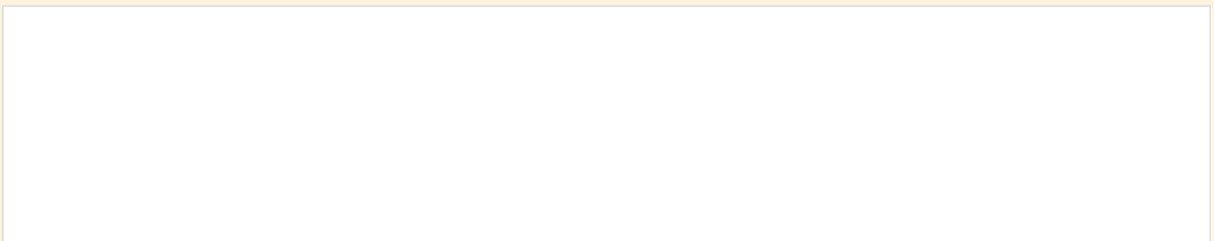
2. Design and propose a solution to a real-world problem using linear equations

Complete these review questions:

1. Graph the linear equation $y = 3x - 2$ and identify the x-intercept and y-intercept

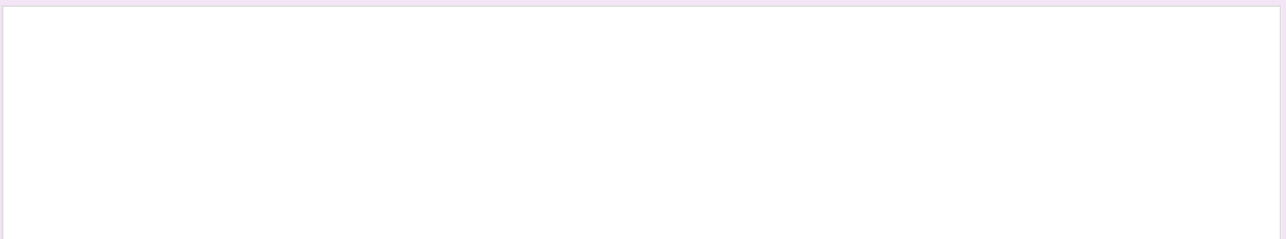


2. Identify the x-intercept, y-intercept, and axis symmetry of the linear equation $y = 2x + 1$



Research Task:

Research and write a short report on the history and development of linear equations, including key contributors and milestones



Conclusion:

Congratulations! You have completed this unit on graphing linear equations and identifying key features. Reflect on what you have learned and how you can apply it in real-world situations

Reflection:

What did you find most challenging or interesting about this unit? What would you like to learn more about in the future?

Glossary:

- Linear equation: an equation in which the highest power of the variable is 1
- X-intercept: the point at which the graph crosses the x-axis
- Y-intercept: the point at which the graph crosses the y-axis

References:

- Textbook: [Insert textbook title and author]
- Online resources: [Insert online resources]



Student Name: _____

Class: _____

Due Date: _____

Introduction to Graphing Linear Equations

Essential Understanding:

- Definition of a linear equation
- Graphing a linear equation on a coordinate plane
- Identifying x-intercept and y-intercept
- Understanding axis symmetry

Complete these concept checks:

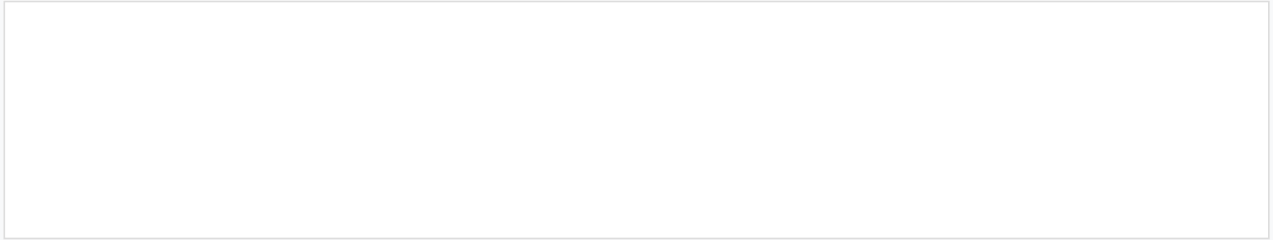
1. Define and give an example of a linear equation

2. Graph the linear equation $y = 2x + 1$ and identify the x-intercept and y-intercept

Graphing Linear Equations in Slope-Intercept Form

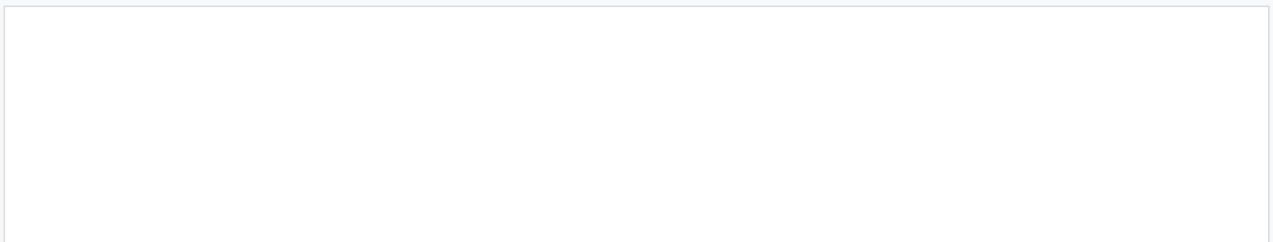
Scenario 1: Graphing a Linear Equation

Graph the linear equation $y = 3x - 2$ and identify the x-intercept and y-intercept



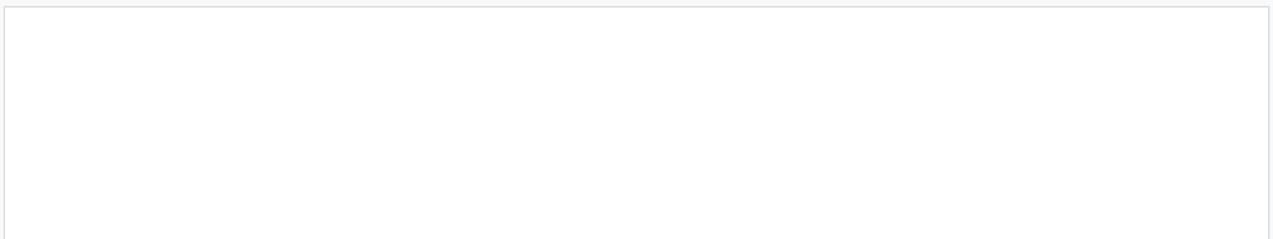
Scenario 2: Identifying Key Features

Identify the x-intercept, y-intercept, and axis symmetry of the linear equation $y = -x + 3$



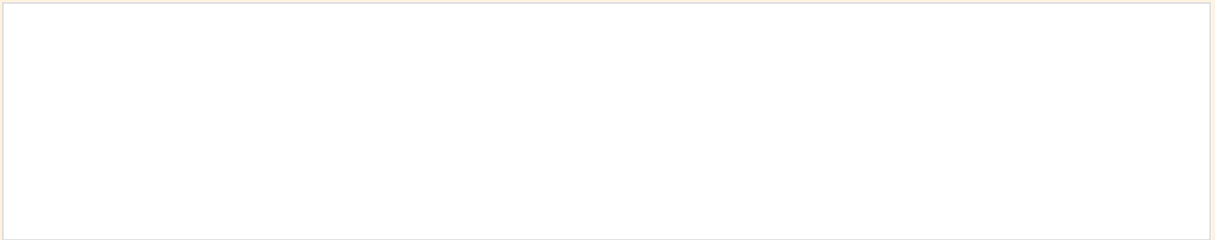
Scenario 3: Real-World Application

A company sells x units of a product at \$2 each. The cost of producing x units is $\$0.50x + \100 . Write a linear equation to represent the revenue and cost. Graph the equations on a coordinate plane and identify the x-intercept and y-intercept

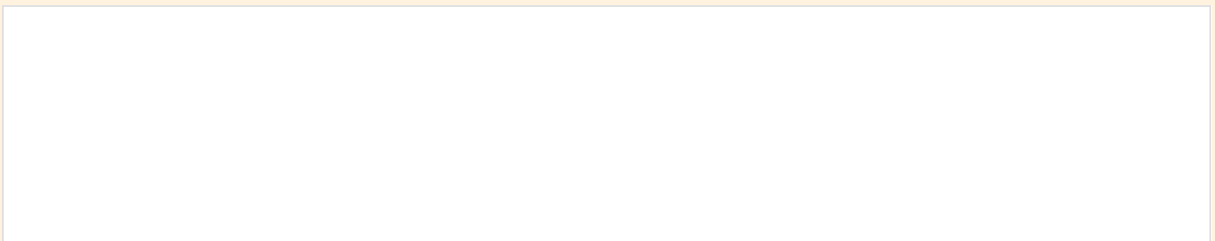


Complete these practice problems:

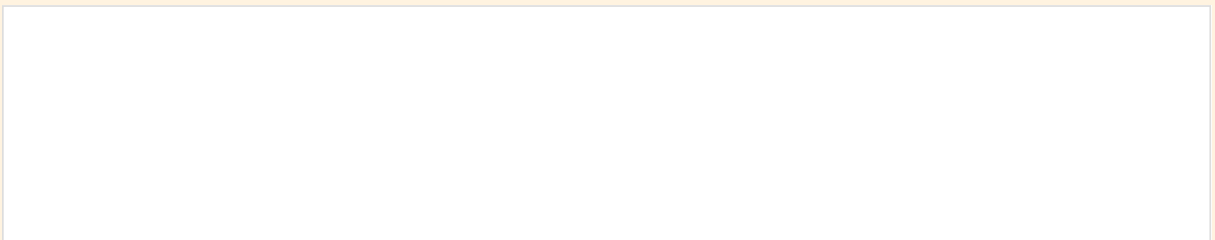
1. Graph the linear equation $y = 2x + 4$ and identify the x-intercept and y-intercept

A blank coordinate plane with x and y axes, intended for graphing the linear equation $y = 2x + 4$.

2. Identify the x-intercept, y-intercept, and axis symmetry of the linear equation $y = x - 1$

A blank coordinate plane with x and y axes, intended for identifying the x-intercept, y-intercept, and axis symmetry of the linear equation $y = x - 1$.

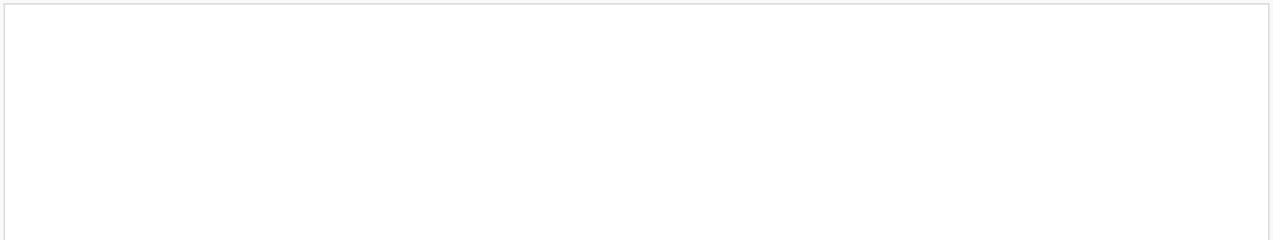
3. Graph the linear equation $y = -2x + 1$ and identify the x-intercept and y-intercept

A blank coordinate plane with x and y axes, intended for graphing the linear equation $y = -2x + 1$.

Challenge Problems

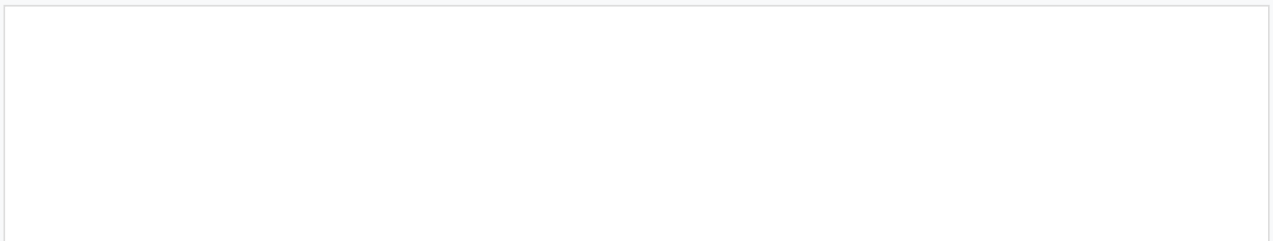
Scenario 1: Challenge Problem

A car rental company charges a base fee of \$20 plus \$0.25 per mile driven. Write a linear equation to represent the cost of renting a car for x miles. Graph the equation on a coordinate plane and identify the x -intercept and y -intercept



Scenario 2: Challenge Problem

A water tank can hold 1000 gallons of water. Water is being pumped into the tank at a rate of 5 gallons per minute. Write a linear equation to represent the amount of water in the tank after x minutes. Graph the equation on a coordinate plane and identify the x -intercept and y -intercept



Choose any combination:

1. Design and explain a linear equation to model a real-world situation

2. Create a graph to represent a linear equation and identify key features

3. Write a short essay on the importance of graphing linear equations in real-world applications

Conclusion:

Congratulations! You have completed this worksheet on graphing linear equations and identifying key features. Remember to practice regularly to reinforce your understanding of these concepts.

Answer Key:

1. Graph: $y = 2x + 1$, x-intercept: $(-0.5, 0)$, y-intercept: $(0, 1)$
2. x-intercept: $(3, 0)$, y-intercept: $(0, 3)$, axis symmetry: $x = -1$
3. Revenue: $y = 2x$, Cost: $y = 0.5x + 100$, x-intercept: $(200, 0)$, y-intercept: $(0, 100)$

Well done on completing your homework!