


Appendix 3

Jigsaw: Reading materials, Guiding questions, Multiple choices worksheet

Student 1 Material (Parallel and Perpendicular)

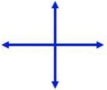
Parallel and Perpendicular Lines

Parallel Lines - 2 lines that never intersect

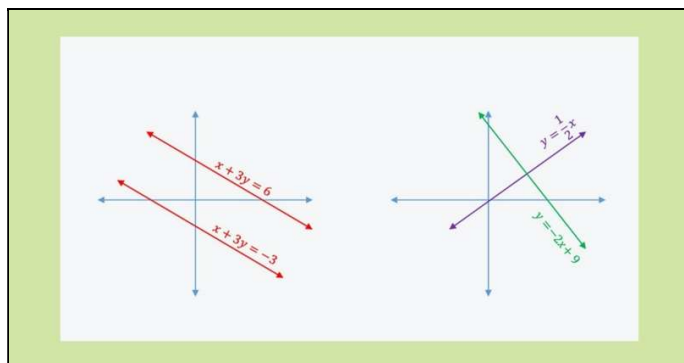


They have the same slope
 $m_1 = m_2$
They have different y-intercepts
 $b_1 \neq b_2$

Perpendicular Lines - 2 lines that intersect



They create 4 right angles
They have different slopes
 $(m_1)(m_2) = -1$
They can have the same y-intercept



Guiding Questions:

Determine whether the graphs of each pair of equations are **parallel**, **perpendicular** or **neither**.

1. $y = 3x + 4$ $y = 3x + 7$	2. $y = -4x + 1$ $4y = x + 3$
3. $y = 2x - 5$ $y = 5x - 5$	4. $y = -1/3x + 2$ $y = 3x - 5$
5. $y = 3/5x - 3$ $5y = 3x - 10$	6. $y = 4$ $4y = 6$
7. $y = 7x + 2$ $x + 7y = 8$	8. $y = 5/6x - 6$ $x + 5y = 4$

Student 2 Material (Slope)

Slope represents the rate of change.

- Steepness
- How fast / slow is the increase / decrease?

SLOPE

Quick Tips & Key Ideas

Count out a slope between two points using **RISE OVER RUN** (vertical change over horizontal change).

Up is a positive movement.
Down is a negative movement.
Right is a positive movement.
Left is a negative movement.

0 in numerator = **ZERO** slope (horizontal line)

0 in denominator = **UNDEFINED** slope (vertical line)

Write a slope as a fraction in simplest form.

A line has the same slope **EVERYWHERE**. You can choose any two points to calculate the slope (and then use another two to check your work!)

When using two points (as coordinates or from a table), use the slope formula to calculate the slope:

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Guiding Questions

Slope: Two-Point Formula Sheet 1

Example:
Find the slope of a line passing through the points (4, 8) and (3, -2).

$$\begin{aligned} \text{Slope} = m &= \frac{y_2 - y_1}{x_2 - x_1} \\ &= \frac{-2 - 8}{3 - 4} = \frac{-10}{-1} = 10 \end{aligned}$$

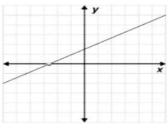
Use two-point formula method to find the slope of a line passing through the given points.

1) (-4, 2) and (5, 6)	2) (5, -5) and (7, 3)
Slope = _____	Slope = _____
3) (2, 1) and (3, -10)	4) (3, 9) and (1, 8)
Slope = _____	Slope = _____
5) (7, 1) and (-2, 3)	6) (0, -2) and (-6, 4)
Slope = _____	Slope = _____
7) (-8, -5) and (-7, -4)	8) (9, 8) and (5, 1)
Slope = _____	Slope = _____

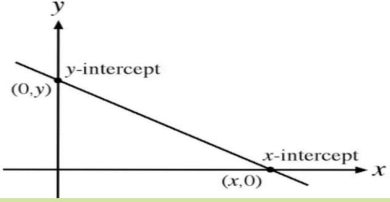
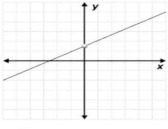
Student 3 Material (x-intercept and y-intercept)

x&y-intercept

x-intercept The point where a graph intersects the x-axis. The point where the equation of the graph has an x-value of zero.

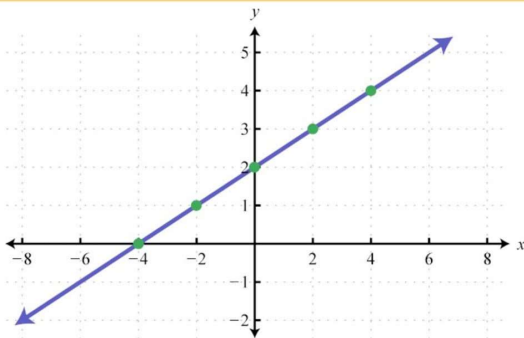


y-intercept The point where a graph intersects the y-axis. The point where the equation of the graph has an x-value of zero.



The graph shows a line intersecting the y-axis at the point $(0, y)$ labeled "y-intercept" and the x-axis at the point $(x, 0)$ labeled "x-intercept".

Guiding Questions



The graph shows a line on a coordinate plane with x-axis from -8 to 8 and y-axis from -2 to 5. Five points are marked on the line: $(-4, 0)$, $(-2, 1)$, $(0, 2)$, $(2, 3)$, and $(4, 4)$.

- 1) Label the coordinates of these five points.
- 2) Label x-intercept and y-intercept in the given figure.

Jigsaw Quiz

Jigsaw quiz

Part1: MCQ (20 marks, 4 marks for each)

- For the line $3x - 4y - 12 = 0$, which statement is true?
 - The x -intercept is 3 and the y -intercept is 4.
 - The x -intercept is 3 and the y -intercept is -4 .
 - The x -intercept is 4 and the y -intercept is 3.
 - The x -intercept is 4 and the y -intercept is -3 .
- What are the slope and y -intercept of the relation represented by the equation $10x + 5y - 15 = 0$?
 - slope: 2, y -intercept: 3
 - slope: 2, y -intercept: -3
 - slope: -2 , y -intercept: 3.
 - slope: -2 , y -intercept: -3
- For the line $4x - 3y - 12 = 0$, which statement is true?
 - The x -intercept is 3 and the y -intercept is -4 .
 - The x -intercept is 3 and the y -intercept is 4.
 - The x -intercept is 4 and the y -intercept is -3 .
 - The x -intercept is 4 and the y -intercept is 3.

4. Which two lines are parallel?

- $y = 3x + 2$
 $y = 2x + 2$
- $y = 3x - 4$
 $y = x + 5$
- $y = x$
 $y = 5$
- $y = 0$
 $y = 2$

5. Identify the pair of perpendicular lines.

- $y = 5x + 2$
 $y = 5x + 1$
- $y = 2x + 1$
 $y = -2x + 5$
- $y = 3x + 4$
 $y = \frac{1}{3}x + 6$
- $y = 4x + 4$
 $y = 4x + 3$

Part2: Drawing

Draw the graph by the given linear equations.

