**7.1 Slope-Intercept Form**

**Goals**

* Identifying the slope and the y-intercept of a straight line graph
* Determining the linear equation using slope and y intercept
* Rewriting a linear relation in slope intercept form
* Graphing equations in slope intercept form
* Solving problems using equations in slope intercept form

**Vocabulary**

1. Y-intercept
2. Slope-intercept form
3. Parameter

**Notes**

The equation of the slope intercept form is

Where m= \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ b=\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Table of Values Slope y Intercept Equation

|  |  |
| --- | --- |
| X | Y |
|  |  |
|  |  |
|  |  |

Table of Values Slope y Intercept Equation

|  |  |
| --- | --- |
| X | Y |
|  |  |
|  |  |
|  |  |

Table of Values Slope y Intercept Equation

|  |  |
| --- | --- |
| X | Y |
|  |  |
|  |  |
|  |  |

Table of Values Slope y Intercept Equation

|  |  |
| --- | --- |
| X | Y |
|  |  |
|  |  |
|  |  |

**Examples**

1. A. What are the slope and y intercept of the line graph shown

B. Write the equation of the line in slope-intercept form

c. Using technology, graph to check your answer

1. The student council rents a dunk tank for a fundraising activity. The relationship between the number of balls thrown, x, and the profit, y, in dollars may be represented by the equation 3x – 2y – 600 = 0.
	1. Rewrite the equation in slope-intercept form
	2. State the slope of the line. What does it represent?
	3. Identify the y intercept. What does it represent?
	4. The break even point is the point at which the money raised equals the money spent. How many balls must the students sell to reach the break even point?

|  |  |
| --- | --- |
| Depth (m) | Pressure (kPa) |
| 0 | 100 |
| 25 | 350 |
| 50 | 600 |
| 75 | 850 |

1. Submarines must withstand tremendous pressure exerted on all sides by water. The table shows the linear equation between pressure and water depth.
	1. Sketch the graph of the data
	2. What is the slope line? What does it represent?
	3. Determine the value of the parameter, b. What does it represent?
	4. Write the equation that models the relationship between pressure, P, in kilopascals, and water depth, d, in meters. Express in slope intercept form
	5. The deepest point on Earth is Challenger Deep, in the Mariana Trench. The research vessel *Trieste* reached the bottom of the Deep. The walls protecting the two crew members had to withstand a pressure of 109 300 kPa. What was the approximate depth of Challenger Deep.
2. An archaeologist simulates a First Nations method of boiling water by adding hot rocks to an earthen pit filled with water. The temperature of the water at the start of the experiment is 10 ̊C. The equation W = mt + 10 models how the temperature of the water, W, in Celsius, increases at a constant rate of m degrees Celsius per minute for t times.
	1. After 5 min, the water temperature of 19 ̊C. Determine the value of the parameter m. What does m represent?
	2. How long will it take the water to boil?

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