APPLIED MATH LAB - UNIT 16

Solving Problems That Involve Linear Equations

Linear Playing Cards

Objective – By the end of this lab, students will demonstrate competency in reading a formula, substituting values into the formula and finding an answer.

Materials list – Paper, pencil, vernier caliper, deck of playing cards.

EALRS Assessed – Math EALRS 1.2.6: understand and apply strategies to obtain reasonable measurements; 1.4.3: apply appropriate methods and technology to collect data; 1.4.4: apply techniques to find an equation; 1.5.4: apply understanding of equations, tables or graphs; 1.5.6: apply procedures to solve equations are assessed during this lesson. These concepts are also assessed on the WASL.

Statement of Problem -

Playing cards are manufactured to a specific height, width and thickness so they're perfect for generating data for linear equations. We'll be measuring and charting the thickness of varying numbers of playing cards and then creating the linear equation to describe their relationship.

Instructions –

1. Count out 10 playing cards.
2. Use the vernier caliper to measure the thickness of the 10 cards. Record the results in a table.
3. Now add another 10 cards to your first stack.
4. Measure and record the thickness of your new stack of 20 cards.
5. Repeat steps 1 through 4 until you have less than 10 cards left.
6. Now, let thickness be the "y" variable and the number of cards be the "x" variable. Calculate the slope.
7. What would be the y-intercept point?
8. Write an equation, in slope-intercept form, to describe the relationship between the number of cards and the thickness of the stack of cards.
9. Graph the equation.

Assessment – This lab will be assessed using a 50 point rubric. Fifteen points can be earned for a neat, clear data table. Ten points are earned for the correct equation in slope-intercept form and fifteen points for a correct graph. Students may work with a lab buddy on this project, but must turn in their own paper for the data and equation.

Optional Activity – Use your equation to calculate the thickness of a complete deck of 52 cards.

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