SLOPE ACTIVITY
NUTS & BOLTS

NAME:_____
DATE:_____

QUESTION: How many nuts can a person put on a bolt in 10 minutes? Is there a way to answer this question without actually timing the process?

YES THERE IS! You can take data for a few trials and then draw a line that best fits the data. You can then develop an equation for the line and determine the time from either the line or the graph.

Step 1: **Collect the Data**

Trial 1

Independent Variable X	**Dependent Variable Y**
UNITS:	UNITS:

Trial 2

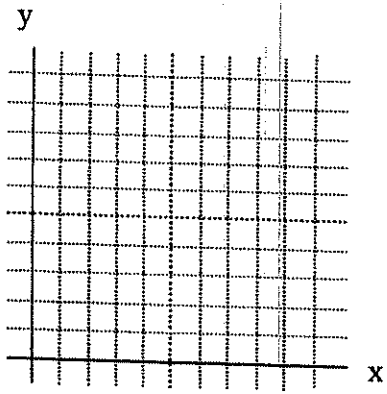
Independent Variable X	**Dependent Variable Y**
UNITS:	UNITS:

Trial 3

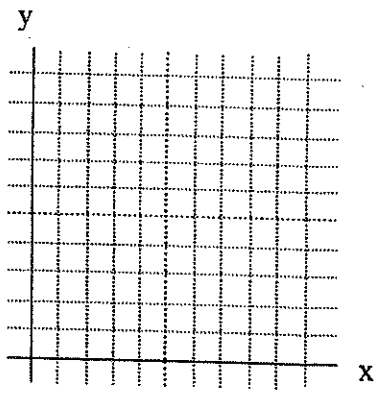
Independent Variable X	**Dependent Variable Y**
UNITS:	UNITS:

Step 2: **Graph the Data. Label the axis with the correct units.**

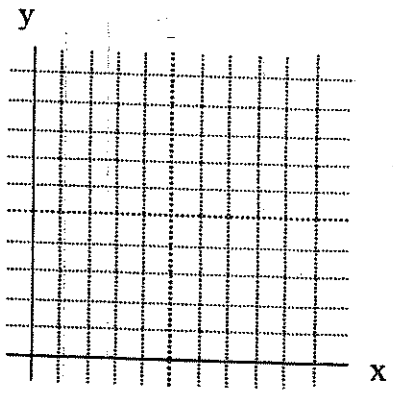
Trial 1



Trial 2



Trial 3



Step 3: Draw a straight line through two of the points. Choose the line that best fits your data. Circle the points on your graph and note the coordinates below.

Trial 1 points: (_____, _____) and (_____, _____)

Trial 2 points: (_____, _____) and (_____, _____)

Trial 3 points: (_____, _____) and (_____, _____)

Step 4: Using the data points, calculate the slope for each trial.

Trial 1 Slope

Trial 2 Slope

Trial 3 Slope

Step 5: From the graph, determine where the line crosses the y – axis for each trial. THIS IS CALLED THE Y INTERCEPT.

Trial 1 Y-Intercept

Trial 2 Y-Intercept

Trial 3 Y-Intercept

Step 6: Write the equation for the line in slope-intercept form $Y = MX + B$

M is the slope
B is the y-intercept

Trial 1 Equation

Trial 2 Equation

Trial 3 Equation

Step 7: Finally, answer the question: How many nuts can a person put on a bolt in 10 minutes? $X = 10$ minutes

Trial 1 – From Equation	**Trial 1 – From Graph**	**Trial 2 – From Graph**	**Trial 2 – From Graph**	**Trial 3 – From Equation**	**Trial 3 – From Graph**