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Hands-On Math
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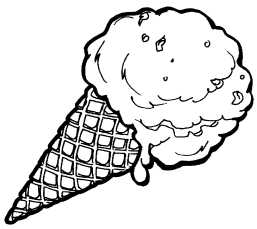
Algebra Linear Equation Lesson Plan



Lesson Title: Compare and Model two Summer Jobs with Desmos

Lesson Objective: Students will choose and defend their preferred summer position based on the equation they build and express in Desmos.

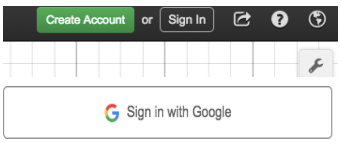
Corresponding Standard: CCSS A-CED - Create equations that describe numbers or relationships

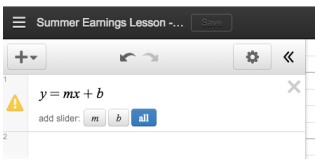
1. Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.
2. Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.

Student Activity
(students must have access to the Web and be familiar with the slope intercept form of a line)

Warm-up: How to use Desmos:

1) navigate to www.Desmos.com
2) Create an account
3) Use your school Google account to sign in
4) Select **+** (add item) and choose f(x) expression
5) Type y=mx+b select "all" next to "**add slider**"
6) This allows you to change the values for **m** and for **b.** Play around with this a bit. Make a prediction, then move the slider to see if you are right.
7) When finished, click the x, then proceed to the problem. Message me if you struggle with the calculator.

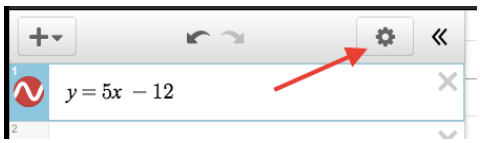




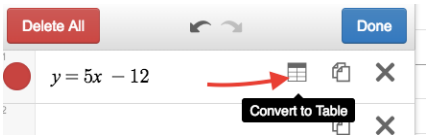
The Problem:

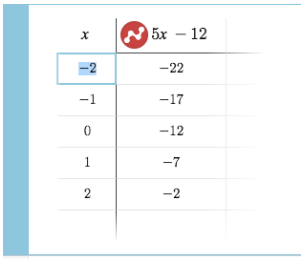
Isabel and Greg each worked at the local ice-cream shop this summer. Both negotiated a different pay scale, but both are happy. Isabelle was paid $20/day plus $8 for every hour she worked. Greg worked at the same shop and negotiated a higher wage. He earns $13 each hour, but HE PAYS the ice cream shop $10 to show up and begin working.

1. Write an equation that describes each worker's pay. What do the letters y, m, x, & b represent in your equation?
2. Complete a table that shows their earnings each hour
    a. To make the table in Desmos, click on the gear on the same line that you have your formula.

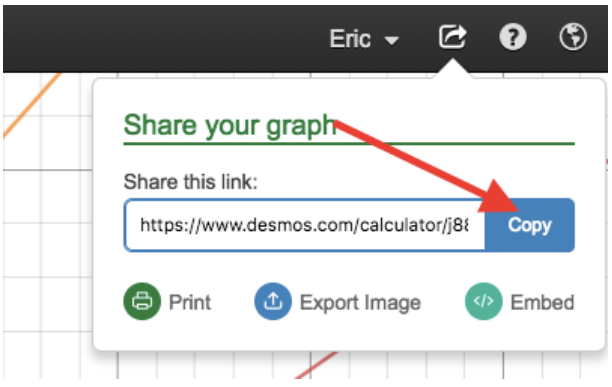


    b. Then click on the table, it will start a table with some values filled out for your formula.





3. It will automatically graph the equations in Desmos. Save your graph.
4. How many hours go by for them to each earn the same pay? How do you know?
5. Who has the best deal? For what situations do each worker make the most money?
6. The shop is staffed 11 hours each day. What pay scale would you have chosen this summer? Why?
7. Share a google doc with me <u>with answers in complete sentences</u> to these questions. <u>Include a header with your name and this assignment title.</u> Additionally, share your graph by clicking on the Share button and copying the link onto your page so that I can access your saved graph.
    a.



HINT: Remember that in slope intercept form, there is a fixed value and one that changes as the x value changes. For this activity, we want to assume "x" is how many hours worked.