

Welcome Back MYP Math 9!

Self-assess:

| | Assignment Effort Grade (Circle One) | Comments (What was interesting or challenging?) |
|--|--|--|
| Monday Date: <u>10-2</u> Topic: <u>Systems Quiz</u> | 0 1 2 | I began reviewing my notes for the upcoming unit test. |
| Tuesday Date: <u>10-3</u> Topic: <u>Systems of Equations Review</u> | 0 1 2 | I learned from my mistakes and practiced problems that were hard for me! |
| Wednesday Date: _____ Topic: _____ | 0 1 2 | |
| Thursday Date: _____ Topic: _____ | 0 1 2 | |
| Friday Date: _____ Topic: _____ | 0 1 2 | |

Class Plan:

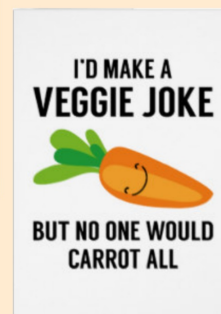
1. Warm-up
2. Joke Break
3. "Real Life Problem" Practice
Criterion D Assessment
4. Self-assess
...compare with the key
Unit 1 Test
Friday, October 6th

YouTube: Matrices Lesson

A student found this video helpful.
Hopefully it will support your learning as well!

<https://www.youtube.com/watch?v=Ff9ba3PryUs>

Joke Break!



Time Studying & Test Score

Criterion D: Real Life Application

1. The table represents the time in minutes that students spend studying for a math test and the test score percentage.

| | | | | | | | | | | | | |
|---|----|----|----|----|----|----|----|----|----|----|----|----|
| Time spent studying for a math test (minutes) | 5 | 50 | 30 | 25 | 12 | 45 | 20 | 60 | 40 | 55 | 10 | 75 |
| Math test score (percentage) | 10 | 75 | 55 | 40 | 35 | 60 | 40 | 90 | 55 | 77 | 25 | 95 |



- *Choose Points (any outliers?)
- *Create Line of Best Fit
- *Find the pattern/gradient, how many more min = how many more points?
- *Linear equation (use graph/algebra/technology)
- *Verify your equation
- *Predict and Reflect on Realism

Done? Correlation of the variables?
(look up r-value)

*Choose Points

1. The table represents the time in minutes that students spend studying for a math test and the test score percentage.

| | | | | | | | | | | | | |
|---|----|----|----|----|----|----|----|----|----|----|----|----|
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| Math test score (percentage) | 10 | 75 | 55 | 40 | 35 | 60 | 40 | 90 | 55 | 77 | 25 | 95 |

$r \approx 0.976$
Strong positive correlation
between study time and % on test.

SOLUTION

IB MYP Math 9 Extended REVIEW

Name Key

(Quiz 1.1 Practice)

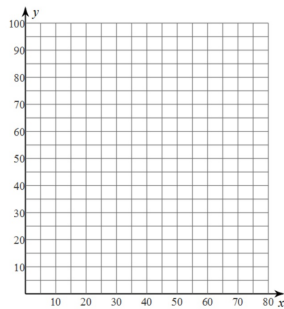
1. The table represents the time in minutes that students spend studying for a math test and the test score percentage.

| | | | | | | | | | | | | |
|---|----|----|----|----|----|----|----|----|----|----|----|----|
| x | 5 | 50 | 30 | 25 | 12 | 45 | 20 | 60 | 40 | 55 | 10 | 75 |
| y | 10 | 75 | 55 | 40 | 35 | 60 | 40 | 90 | 55 | 77 | 25 | 95 |

(a) Use the axes below to plot **at least 6** points from the table. Don't forget to give it a title and label your axes!

*Plot Points for Line of Best Fit

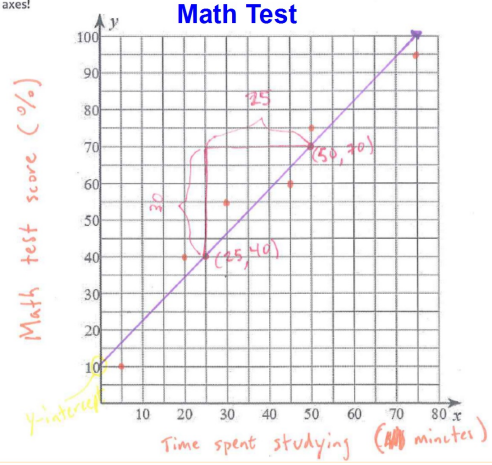
(a) Use the axes below to plot **at least 6** points from the table. Don't forget to give it a title and label your axes!



(b) Estimate a "line of best fit" for your data points and draw it on your graph. Explain how you choose this line and justify why it is an appropriate choice.

SOLUTION

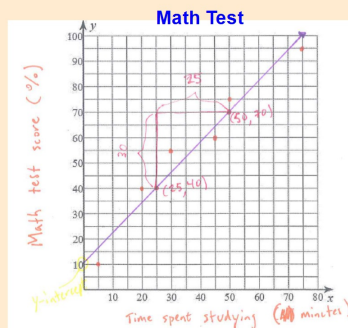
(a) Use the axes below to plot at least 6 points from the table. Don't forget to give it a title and label your axes!



SOLUTION

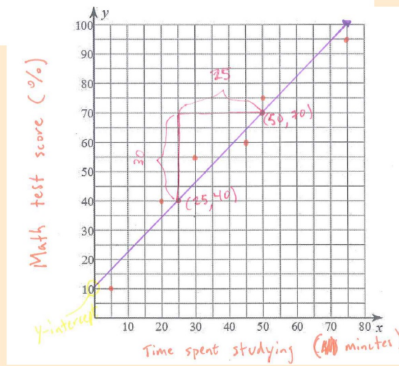
(b) Estimate a "line of best fit" for your data points and draw it on your graph. Explain how you choose this line and justify why it is an appropriate choice.

It follows the general direction of the data and evenly splits the datapoints.



*Find the Slope/Gradient

6. (a) Using two points on the line of best fit, find the gradient (slope) of the line algebraically and with the gradient triangle. Explain what the gradient represents in this situation. What does it mean?



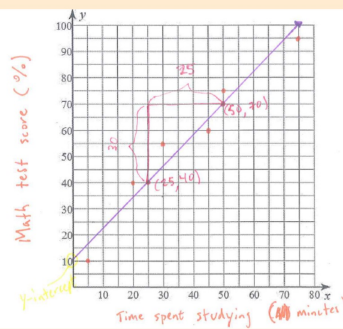
SOLUTION

6. (a) Using two points on the line of best fit, find the gradient (slope) of the line algebraically and with the gradient triangle. Explain what the gradient represents in this situation. What does it mean?

$$\begin{matrix} (25, 40) & \text{and} & (50, 70) \\ x_1, y_1 & & x_2, y_2 \end{matrix}$$

$$\frac{y_2 - y_1}{x_2 - x_1} = \frac{70 - 40}{50 - 25} = \frac{30}{25} = \frac{6}{5}$$

For every 5 minutes spent studying, the math test score rose by 6%.



*Solve for an equation

(b) Find the **y-intercept** and then **write an equation** for your line of best fit.

SOLUTION

(b) Find the **y-intercept** and then **write an equation** for your line of best fit.

Graphically: $b = 10$

Algebraically: $y = \frac{6}{5}x + b$
 $(25, 40)$ $40 = \frac{6}{5}(25) + b$

$$40 = 30 + b$$
$$10 = b$$

$$y = \frac{6}{5}x + 10$$

*Verify your equation

7. Verify the accuracy of your equation by choosing a point to substitute into your equation.

Chosen point: (40 , 55)

"How well does your equation represent your points?"

SOLUTION

7. Verify the accuracy of your equation by choosing a point to substitute into your equation.

Chosen point: (40 , 55)

$$55 \stackrel{?}{=} \frac{6}{5}(40) + 10$$

$$55 \stackrel{?}{=} 48 + 10$$

$$55 \neq 58$$

"How well does your equation represent your points?"

When I verified my equation, I saw that my value was 3% off. This means that my equation is slightly off, but still gives the general ballpark percentage.

*Predict and Reflect on Realism

8.(a) Use your equation to predict the amount of time a student spent studying for the math test if they earned a 50% on the test.

Defend whether your prediction seems realistic.

$r \approx 0.976$
Strong positive correlation
between study time and % on test.

SOLUTION

8.(a) Use your equation to predict the amount of time a student spent studying for the math test if they earned a 50% on the test.

$(x, 50)$

$$\begin{array}{r} 50 = \frac{6}{5}x + 10 \\ -10 \quad -10 \\ \hline 5(40) = \left(\frac{6}{5}x\right)5 \end{array}$$

$$\begin{array}{r} 200 = 6x \\ \frac{200}{6} = \frac{6x}{6} \\ \hline 33\frac{1}{3} = x \\ 33\frac{1}{3} \text{ minutes} = x \end{array}$$

Defend whether your prediction seems realistic.

This seems fairly realistic. A piece of data we were given says that 30 minutes of studying got a student a 55%, and students are all different, so some variation will occur.

MYP Rubric: How much did you improve?

1) Compare key with your work.

2) Self-assess.

Done?
Look over
Quiz 1
Exemplars

| | | |
|---|--|--|
| 7 | <ul style="list-style-type: none">i. Identify the relevant elements of the authentic real-life situationii. select appropriate mathematical strategies to model the authentic real-life situation | <ul style="list-style-type: none">• Correct graph is titled with axes labeled.• Mathematical strategies are done without error.<ul style="list-style-type: none">○ Line of Best Fit<ul style="list-style-type: none">▪ Justification provided and appropriate.○ Gradient<ul style="list-style-type: none">▪ Both Algebraic Formula and Gradient Triangle○ Linear Equation<ul style="list-style-type: none">▪ Y-intercept from the graph▪ Y-intercept from algebra (δ) |
| 8 | <ul style="list-style-type: none">iii. Apply the selected mathematical strategies to reach a correct solution to the authentic real-life situationiv. justify the degree of accuracy of the solutionv. justify whether the solution makes sense in the context of the authentic real-life situation. | <ul style="list-style-type: none">• Real-life interpretation of gradient and variables.• Prediction without error and reasonably defended.• Equation is verified without error and accuracy is defended.• Additional real life factors are considered and are reasonable. |