Sacramento City Unified School District

Grade 8 Math

Major Learning Targets for This Course

Functions

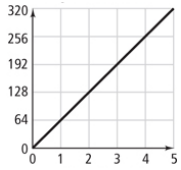
Students will define, evaluate and compare functions and will use functions to model relationships.

"I understand that a function is a rule that assigns exactly one output to each input."	*"I can compare functions represented in different ways."*	"I can use a function to model a linear relationship between two quantities."

Example Task:

Which function below has the greatest rate of change? Which one has the greatest initial value? Explain how you know.

Function 1:
The function represented by the graph shown.



Function 2:
The function whose input and output are related by the equation
$y = 40x + 70$.

Function 3:
The function which produced the table below.

x	y
0	50
10	150
20	250
30	350

Expressions and Equations

Students will understand the connection between proportional relationships, lines, and linear equations and they will solve linear equations and systems of linear equations.

"I can graph proportional relationships and interpret unit rate as the slope of the graph."	"I can recognize whether a linear equation has one solution, infinitely many solutions, or no solutions."	"I can solve systems of linear equations and approximate solutions by graphing."

Example Task:

Suppose you know that the cost of 3 gift cards and 4 movie tickets is $168, while 2 gift cards and 3 movie tickets cost $116.

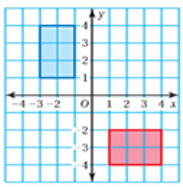
1. Explain how to use this information to find the cost of 1 gift card and 1 movie ticket.
2. Next, explain how you could find the cost of 1 movie ticket.
3. Explain how you would find the cost of 1 gift card.

Geometry

Students will use physical models, transparencies, or technology to understand congruence and similarity of figures.

"I can use tools to rotate, reflect, translate, and dilate figures in the coordinate plane."	"I can determine whether two figures are congruent or not."	"I can use coordinates to describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures."

Example Task:



Are the two figures congruent?
How do you know?
If they are, describe a sequence of transformations that shows the congruence.

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Expected Behaviors in Math Class

Students will…

- Make predictions and estimations
- Decide if their answer is reasonable
- Use examples and counterexamples to justify a conclusion
- Explain their thinking and their process to solving a problem
- Apply mathematics to solve problems in everyday life
- Consider available tools to help them solve problems (including hands-on tools and technology)
- Use technology to explore and deepen their understanding
- Communicate ideas clearly verbally and in writing, using math vocabulary when appropriate
- Look for patterns and shortcuts

How Can I Support My Student in This Course?

1. Ask Questions

- When your student is stuck, ask him/her questions like:
  - "How do you know?"
  - "Have you seen a similar problem like this before?"
  - "Does your answer make sense?"
  - "What is the problem asking you?"
  - "What information do you need to solve this question?"

2. Encourage Your Student to Ask Questions

- You don't need to be able to answer every question that students may come up with; encourage your student to write down his/her question to bring to a teacher or peer the next day

3. Ask Your Student to Draw the Math Problem

- All mathematics can be represented visually; visual representations help students understand the concepts
- Encourage color coding

4. Encourage Multiple Representations of the Problem

- Ask your student to solve the problem in a different way, and to make connections between the different representations

5. Value Mistakes

- Students are learning when they are making mistakes; create an environment where your student feels comfortable making a mistake and learning from it

6. Don't Simply Tell Them the Right Answer

- Once students are aware that their answer is right, they are more likely to stop thinking about the math
- Instead of telling them the right answer, ask them a question (see #1) or have them draw a picture

7. Praise Effort

- When your student gets a right answer, acknowledge how hard they must have worked and practiced
- When your student is stuck, acknowledge that sometimes math is challenging and that if they continue to practice and work hard, they will improve

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