Learning Works Charter School

Integrated Math IA
Module 3

Student Name: _____ Teacher Name: _____

As you work through the chapters in your Integrated Math 1 course, you will be encouraged to think and to make conjectures while you persevere through challenging problems and exercises. You will make errors – and that's okay! Learning and understanding occur when you make errors and push through mental roadblocks to comprehend and solve new and challenging problems.

Text: *Integrated Math I,* Big Ideas, 2016

To ensure you are learning, you must show your work for all exercises.
YOU WILL NOT EARN CREDIT FOR ANSWERS WITHOUT WORK.

Chapter 3: Graphing Linear Functions (3.1-3.6)

_____ Maintaining Mathematical Proficiency (page 101): Complete exercises #1-12 **all**

_____ 3.1 Functions: Read the lesson and complete exercises
#1, 3, 4, 5, 6, 9, 10, 11, 12, 13, 15, 20, 23, 25, 44- 51 **all**

_____ 3.2 Linear Functions: Read the lesson and complete exercises
#1, 5, 6, 8, 10, 11, 12, 15, 17, 18, 19, 23, 27, 28, 55-61 **all**

_____ 3.3 Function Notation: Read the lesson and complete exercises
#1-5 **all**, 9, 13, 15, 16, 17, 19, 20, 21, 23, 24 25, 27, 37, 38, 39, 40

_____ 3.4 Graphing Linear Equations in Standard Form: Read the lesson and complete exercises
#1, 3-10 **all**, 13, 14, 15, 16, 25, 39, 40, 41, 42

_____ 3.5 Graphing Linear Equations in Slope-Intercept Form: Read the lesson and complete exercises
#1, 3, 5, 6, 7, 9, 10, 12, 13, 15, 16, 17, 19, 20, 24, 25, 26, 27, 29, 40, 54, 56-60 **all**

_____ 3.6 Transformations of Graphs of Linear Functions: Read the lesson and complete exercises
#5, 6, 7, 9

Students must complete the Chapter Review and Project with a teacher or tutor at school.

_____ Chapter Review (pages 156-158): Complete exercises #1-27 **all**

_____ Complete the attached Project **(No project = No credit)**

A teacher or tutor reviewed the Chapter Test with the student.

Date: _____ Signature: _____

Grade

Continued on next page

Integrated Math 1 Project
Module 3: Graphing Linear Functions
Textbook Pages 101-160

Pete's Pizza

Be sure to answer questions in complete sentences.

Pete's Pizza charges $5.00 for a plain cheese pizza and $0.25 per topping.

1. How much would you have to pay for a pizza with no toppings?

2. How much would you have to pay for a pizza with 3 toppings?

Did you know that by doing this math, you were just doing Algebra? The total cost for a pizza from Pete's with x toppings can be described by the equation $y = 0.25x + 5$.

3. What is the slope of this equation and what does it represent?

4. What is the y-intercept of this equation and what does it represent?

On a piece of graph paper, using a ruler, draw a coordinate plane. Label each axis from -15 to 15. Write "Cost in Dollars" along the y-axis and "Number of Toppings" along the x-axis.

5. Graph the equation $y = 0.25x + 5$ and write the equation next to your graph. (This graph will be considered as your "original.")

6. Using your graph, determine how much it would cost to buy a pizza with 12 toppings.

OVER →

7. Use substitution and the equation above to check the total cost you found in problem 6. (Did you get the same cost?)

8. Which method of finding the total cost was easier for you, using the graph or using substitution? Explain why.

9. When setting up your coordinate plane, you were asked to label your axes from -15 to 15. Does it make sense to extend your graph infinitely in both directions? Why or why not?

10. Assume the slope is changed to 0.50.
    a. What is the new equation that results from this change?

    b. What does this change affect in Pete's pricing structure?

    c. How do you think this change will affect the graph?

    d. Add the graph of this new equation to your coordinate plane and write the equation next to the graph. Was your prediction in part b correct? In other words, did your graph change the way you thought it would?

11. If Pete's is running a special that changes the equation to $y = 0.25x + 3$, what changes in the pricing structure? (Circle one answer below.)

    a. The price per topping is increased

    b. The price per topping is decreased

    c. The price of a plain cheese pizza is increased

    d. The price of a plain cheese pizza is decreased

12. Explain why you chose your answer in problem 11.

    _____

    _____

13. For the following questions, use the new equation given to you in problem 11.

    a. How do you think the graph of this new equation will be different from the original graph?

    b. Add the graph of this new equation to your coordinate plane and write the equation next to the graph. Was your prediction in part a correct? In other words, did your graph change the way you thought it would?

14. Write a new equation if a cheese pizza still costs $5.00, but the price per topping is changed to $0.35.

OVER →

15.

    a. Write a new equation if the y-intercept (in the original pricing structure) is increased by $1.50.

b. Describe what changed in the pricing structure.

c. Add the graph of this new equation to your coordinate plane and write the equation next to the graph. How does this graph compare to the original?

16. In general, how does changing the price per topping affect the graph?

17. In general, how does changing the cost of a plain cheese pizza affect the graph?

18.

a. Name two equations whose graphs were parallel to each other:

_____ and _____

b. Why are they parallel?

19. What is one thing you learned from doing this project?