

Name: _____ Date: _____ Period: _____ Score: _____

Algebra 1
Constructed Response Packet # 1

Module: *Module 1 – Operations and Linear Equations and Inequalities*

Eligible Content: *A.1.2.1.2 Interpreting Linear Equations*

You hire Bob the plumber to complete repairs. The cost (c) in dollars to have a plumber come to your house for (h) hours is described by the function: $C = 50h + 100$

A) What does the 100 represent in terms of the problem?

B) What does the 50 represent in terms of the problem?

C) You researched the cost of hiring Cheryl the plumber. Her cost can be described by the function: $C = 42h + 110$. If you need 3.5 hours of work completed at your house, which plumber costs less? Show all work. (2 points)

The plumber that would cost less is _____

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Eligible Content: *A1.2.2.1 Describe, compute, and/or use the rate of change.*

At noon, a pump started emptying an oil storage tank at a constant rate. The tank started with 2,400 barrels of oil and emptied at a rate of 360 barrels per hour.

- A) Write an equation that represents the relationship between B , the number of barrels of oil remaining in the tank and t , the number of hours that the pump has been emptying the tank.

Equation: _____

- B) How many barrels were in the tank at 5 P.M.? Show the work by which you determined your answer.

Answer: _____

- C) At what time will the tank be empty? Show how you determined your answer.

Answer: _____

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Eligible Content: *A1.2.2.1 Describe, compute, and/or use the rate of change.*

A truck driver has a choice of two highways to use for his delivery route. The highway with the least slope will give him the best gas mileage, therefore spending less of his income on gas.

- A) The first highway, Highway A, rises 633.6 feet over 10,560 feet of length. What is the slope of Highway A in simplest fraction form?

Answer: _____

- B) The second highway, Highway B, rises 475.2 feet over 5,280 feet of length. What is the slope of Highway B in simplest fraction form?

Answer: _____

- C) Which highway should the truck driver use to save money on gas? Justify your answer.

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Module: *Module 1 – Operations and Linear Equations and Inequalities*

Eligible Content: *A.1.1.4.1 Use estimation to solve problems.*

The Central Bucks Theme Park charges \$72 for a day pass and \$126 for a week pass.

A) Last week, 5,786 day passes were sold and 1,211 week passes were sold. Estimate the total amount of money paid for the day and week passes for last week. Explain how you used estimation in finding your answer.

B) It costs Central Bucks about \$350,000 a week to run the theme park. Using your estimation from part A, find the expected profit from last week. Show all work.

C) The following week it rained all week long. Only 968 day passes were sold and 1,299 week passes were sold. Estimate the total profit over the past two weeks for the Central Bucks Theme Park. Show all work.