**XEI 501**

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| **CRS SKILL** | **LEVEL** | **DESCRIPTION** |
| **Solve real world problems using first degree equations** | Level 1 Review: XEI 403 | Solve routine first-degree equations |
| Level 2 Focus in Isolation | Solve real-world problems using first-degree equations |
| Level 3 Focus in Context | Solve real-world application problems using first-degree equations that require the use of additional skills. |
| Level 4 Focus Extension | Solve real-world application problems using first-degree equations where the necessary equations are not explicitly given. |
| **LEVEL 1 – REVIEW SKILL – XEI 403**   1. Given , 2. Given , what is the value of ? | | | |
| **LEVEL 2 – FOCUS SKILL IN ISOLATION**  Answer each of the questions that follow. Be sure to show the reasoning that supports your answer.   1. We-Haul movers changes $40.00 to rent a moving truck for a day in addition to $1.30 per mile traveled. Thus the cost of renting a truck is modeled by the equation , where m is the number of miles driven. If Tanya rents a truck for the day and drives a total of 82 miles, how much will it cost her to rent the truck? 2. A coach is ordering dinner from Sue’s Sandwich Shoppe for her team. Each dinner consists of a sub, a bag of chips, a cookie, and a bottle of water. There is a $10.00 delivery charge and each dinner costs $9.45 (tax included). The total price, *P*, of the meal is modeled by the equation . If the total price was $227.35, how many dinners did the coach order? 3. Kristen is writing an article for a magazine. They have offered her a flat fee of $50.00 and $0.10 per word that she writes. Her pay for the article is modeled by the equation . If Kristen is paid $95.00, how many words did she write in her article? | | | |
| **LEVEL 3 - FOCUS IN CONTEXT**   1. Mrs. Choi is taking a summer trip, driving from Chicago to San Diego and has determined that the total distance she will need to drive to get to San Diego is 2,077 miles. Her distance from San Diego, as a function of the number of hours driven, can be modeled by the equation . Use this equation to answer the questions that follow.   a. After driving for 8 hours, how many miles has she traveled? How far from San Diego is she?  b. Of course she didn’t drive straight through to San Diego. She stopped four times: the first time it was a brief stop, only 15 minutes. Mrs. Choi’s second stop was for lunch and took a bit longer, a total of 90 minutes. By the time she made her third stop, she needed to stretch her legs, so she stopped for half an hour. Her last stop was an overnight stay and she was off the road for 8 hours.  If these were the only stops she made, and she left her house at 9:00 am on Monday morning, on what day and at what time did she arrive in San Diego?  c. Mr. Choi also drove from Chicago to San Diego. He drove a bit faster than his wife. *His* distance from San Diego can be modeled by the function  If he left Chicago 4 hours later than did his wife and he stopped 8 times, for 15 minutes each time, who arrived in San Diego first? How long after did the second person arrive?  7. The cost of a voice coach is $22.00 for every 15 minute session with time rounded up to the nearest 15 minute mark. For example, someone who had a 25 minute session would be charged for 30 minutes 🡪 2 15 minute sessions 🡪 $44.00.  The cost of a voice coach is thus modeled by the equation , where *m* represents 15-minute increments. Pat had a voice lesson that began at 1:50 pm and ended at 2:40 pm. How much was Pat charged for the lesson? | | | |
| **LEVEL 4 – FOCUS IN EXTENSION**   1. Every year, a local college gives the incoming freshman a book bag. Imprinted on the bag is the college’s logo and the year the students will graduate. In the past, the college has purchased the bags from Greg’s Gear. The price has been modeled by the function , where *n* represents the number of bags sold. However, this year Greg’s Gear is changing their price structure. They are lowering the flat fee to $50 and increasing the cost per bag by $0.50 per bag. If the college orders 310 bags, what will be their price under the new pricing structure? 2. Mr. McGregor is building a circular garden, as shown in the diagram below. To keep out the rabbits, he plans on installing a fence around the entire garden. The fence will cost $4.10 *per foot*. The radius of the semi-circle is 10 *yards*. Given that the formula for the circumference of an entire circle is , how much will it cost Mr. McGregor to purchase the fencing? | | | |