Real-Life Math

STUDENT ACTIVITY

Directions:

Perform the steps of the process for solving math problems as stated below to solve each of the scenarios. Be prepared to discuss problems and procedures for solving them as a class.

1. Define and understand the problem.
    - by reading it one or more times

2. Identify the information needed to solve the problem.
    - highlight or underline necessary information
    - cross out unnecessary information (when applicable)
    - indicate variables for unknowns

3. Develop an equation from the problem.
    - write a formula for solving the problem using the variables you chose

4. Solve the equation to answer the problem.
    - plug numbers in for the variables
    - perform the calculation

5. Check the answer.
    - verify your answer is reasonable
    - perform the calculation a second time or work backward to verify accuracy

Comparing Pay Rates

Raul has been offered three different jobs and must choose which one to accept. One of the factors he is considering is the pay rate of each job. All three jobs assume the following: Raul would work 50 weeks of the year, 40 hours each week, five days each week, and he would receive a one-hour lunch break each day. Job A is offering a $35,000 annual salary, Job B is offering $15 per hour, and Job C is offering $750 each week. To better compare the pay rates, Raul must convert them so they are all measured in the same way (annually, hourly or weekly). How should Raul do this?

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Calculating the Cost of a Loan

Sierra is getting a loan to purchase a car, but she has a few options for loan terms. She is comparing the cost of each loan to determine which loan will cost the least in terms of interest paid. (Interest is the fee paid for the use of borrowed money, and it is expressed as a percentage of the amount borrowed. When dealing with simple interest, interest owed is a percentage of the amount borrowed multiplied by the amount of time the borrower takes to repay the loan.) All of the loan offers are for $10,000, and include an upfront fee of $200. They are all simple interest loans (as opposed to compound interest loans). Loan A is to be paid back over five years with an annual interest rate of 6 percent. Loan B is to be paid back over four years with an annual interest rate of 4 percent. Loan C is to be paid back over three years with an interest rate of 5 percent. How can Sierra figure out which loan will require the lowest interest payments?

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Comparing Prices

Aiden is grocery shopping and wants to know which packages are cheapest. He is looking at four different bottles of liquid laundry detergent: Bottle A is 175 fluid ounces for $19.25; Bottle B is 138 fluid ounces for $8.97; Bottle C is 100 fluid ounces for $8.00; and Bottle D is 72 ounces for $7.56. Assuming the detergent is of equal quality, which bottle is the best deal?

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Budgeting for an Event

Keisha is planning an event for her company. It will take place the 3rd Saturday of May, and will be four hours long. There will be 35 employees at the event, and each can bring one guest. She must make arrangements for venue, décor, food, beverages and entertainment. She has a budget of $3,000. After researching available options, she has developed the following list of possible vendors.

Décor A: $300; Décor B: $500; Décor C: $750
Food A: $15 per person; Food B: $18 per person; Food C: $800
Beverage A: $3 per person; Beverage B: $5 per person; Beverage C: $500
Entertainment A: $16 per person; Entertainment B: $1,000; Entertainment C: $1,500

She now needs to decide what to buy and who to hire in order to stay under budget. In order to further guard against going over budget, she has decided to leave herself 10 percent of the budget for a contingency fund. Assuming all vendors listed above are of similar quality, how should she decide among vendors? If her boss is not pleased by her initial choice, is there another under-budget combination of vendors she can suggest?

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Converting a Recipe

Caroline is making cookies for a large fundraiser taking place in two days. Her recipe says it makes a 24 cookies, but she needs to make 60 cookies. The recipe consists of the following ingredients: 1 cup flour; 2/3 cup powdered sugar; 1/2 cup cornstarch; and 3/4 cup butter. How should she go about increasing the recipe to make 60 cookies?

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Calculating for Billing

Randal builds and sells cabinets. When deciding what price to charge for a project, he considers the cost of materials and the time he will spend on the project. He charges $18 per hour of labor. Then he adds 15 percent of the total for operational costs. Andrea's cabinets required $2,125 of materials. They took Randal 80 hours of labor over three weeks. How will Randal calculate what to charge for Andrea's cabinets?