7th Grade Dance

Common Core Standard

7.RP.3. Use the proportional relationships to solve multistep ratio and percent problems.
Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

The Task

You are going to the 7th grade dance and you want to know how much money you are going to need to borrow from your parents. You have figured out that the outfit you want to wear is going to cost $56.55, but it is currently on sale for 30% off at the Mall and the sales tax is 6% in Maryland. You will also need to pay for a ticket to the dance. If you buy the ticket in advance it will cost $10.00, but if you buy the ticket at the door of the dance it will cost $15.00. The last thing you will need money for is dinner. You are figuring that you will need $18.00 for the meal at dinner and then you will need to add 6% sales tax and a 20% tip to your meal price.

1. Determine how much money you will need in order to attend the 7th grade dance.

2. If your parents lend you $75.00, is that enough money to cover your costs? Why or why not?

3. What is the percent of change in the price of dance tickets from buying them in advance to buying them at the door?

4. Your parents have decided you will have to pay them the $75.00 back with an additional interest rate of 5%. How much money will you owe your parents, including interest?

Facilitator Notes

1. Give the tasks to small groups of students.
2. You could give the task to students with all of the questions listed or consider have questions 2 – 4 be follow up questions to the task.
3. Consider buleting the important information in the paragraph for students that may need the information presented more explicitly.
Follow-Up Questions

1. What strategies did you use to find your solutions?
2. Was the $75 enough money to borrow from your parents? What conditions did you have to consider?

Solutions

Sample Solution (student strategies may differ):

1. **Determine how much money you will need in order to attend the 7th grade dance.**

   Clothes:
   30% of $56.55
   \[ .30(56.55) = $16.97 \] (when rounded to the nearest hundredth) is the discount amount
   \[ 56.55 – 16.97 = $39.58 \] is the sale price
   6% of $39.58
   \[ .06(39.58) = $2.37 \] (when rounded to the nearest hundredth) is the tax amount
   \[ $39.58 + $2.37 = $41.95 \text{ Total Purchase Price} \]

Dance Tickets:
**Purchased in advance:** $10.00  
**Purchased at the door:** $15.00

Dinner:
6% of $18.00
\[ .06(18.00) = $1.08 \] is the tax amount

20% of $18.00
\[ .20(18.00) = $3.60 \] is the tip

\[ $18.00 + $1.08 + $3.60 = $22.68 \text{ Total amount for your dinner} \]

If you purchase your dance tickets in advance, the cost of the 7th grade dance is:
\[ $41.95 + $10.00 + $22.68 = $73.63 \]

If you purchase your dance tickets at the door, the cost of the 7th grade dance is:
\[ $41.95 + $15.00 + $22.68 = $79.63 \]

2. If your parents lend you $75.00, is that enough money to cover your costs? Why or why not?
If you purchase the 7th grade dance tickets in advance when they are sold for $10.00, then you will have enough money to cover all of your costs for the 7th grade dance with your parents giving you $75.00 because your total expenses will be $73.63, which is $1.37 less than $75.00. If you wait to buy the 7th grade dance tickets at the door when they are sold for $15.00, you will not have enough money because your total expenses will be $79.63, which is $4.63 cents over $75.00.

3. **What is the percent of change in the price of dance tickets from buying them in advance to buying them at the door?**

   Dance Tickets:
   - Purchased in advance: $10.00
   - Purchased at the door: $15.00

   $15.00 - $10.00 = $5.00 is the difference between the tickets

   \[
   \frac{15 - 10}{10} = 0.5 = 50\% \text{ increase}
   \]

4. **Your parents have decided you will have to pay them the $75.00 back with an additional interest rate of 5%. How much money will you owe your parents, including interest?**

   5% of $75.00
   
   \[.05(75.00) = $3.75 \text{ is amount of interest owed} \]

   $75.00 + $3.75 = $78.75 is the total amount you would owe your parents including interest