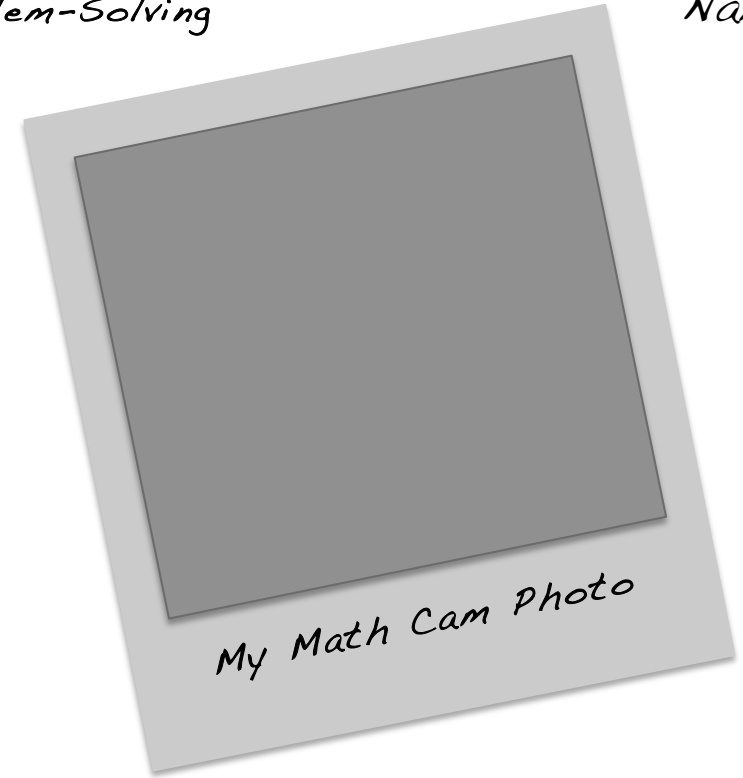
The Math Cam: Creative Problem-Solving

Name_____

Step 1: Identify the problem/question

Why are you solving this problem?
What is the unit of the final answer?



Step 5: Label and Check

Did you answer the question asked?
Did you label your answer?
Is the answer reasonable?
If you answered "no" to any of these questions, what should you do?

Step 2: Identify what is given

What do you already know?

Step 3: Plans and Strategies

Can you write or verbalize your plan to solve the problem?
Can you draw a diagram, graph or picture?
Can you make a table or organized list?
Can you work backwards or solve a simpler problem?

Step 4: Carry out the plan

Time to do the math!

The Math Cam: Creative Problem-Solving **SAMPLE** Name_____

Step 1: Identify the problem/question

Why are you solving this problem?
What is the unit of the final answer?

I was shopping in a clothing store and saw this sale rack of clothes with the following signs hanging on it. If I buy a pair of pants from this rack that had a regular price of $49.95, what will the sale price be? I also wonder, since the percentages add up to exactly 100%, will the pants actually be free after the discounts are applied?

Math Cam Photo: Triple Discount

Step 2: Identify what is given

What do you already know?

I know that the pants I was thinking about buying had an original price of $49.95. I know from the signs that I have to take 60% off, then take off another 20%, and another 20% to get to the final sale price.

Step 3: Plans and Strategies

Can you write or verbalize your plan to solve the problem?
Can you draw a diagram, graph or picture?
Can you make a table or organized list?
Can you work backwards or solve a simpler problem?

I remember that taking 60% <u>off</u> is the same as taking 40% <u>of</u> the original price. Then, rather than taking 20% <u>off</u> of what's left, I can take 80% <u>of</u> it instead. Finally, I can take 80% of what's remaining.

To compute with percents, I remember that I have to write the percents as either fractions or decimals first. I think I will use decimals because these percents are easy to convert to decimals.

Step 4: Carry out the plan

Time to do the math!

Take 40% of 49.95, then 80% of the result, then 80% of the result.

Since "of" means multiply, just find the product:

$49.95 \cdot 0.4 \cdot 0.8 \cdot 0.8$

The product is 12.7872 or about $12.79

Step 5: Label and Check

Did you answer the question asked?
Did you label your answer?
Is the answer reasonable?
If you answered "no" to any of these questions, what should you do?

The pants will cost about $12.79. Even though the percentages add up to 100%, it isn't reasonable for the pants to be free!

I like to check reasonableness by starting with the number 100. $100 \cdot 0.4 \cdot 0.8 \cdot 0.8 = 25.6$, so my answer should be about 25% of the original price. $12.79 is close to 25% of $49.95.