

1.3 Notes: Polya's Four-Step Method

1. Understand the Problem:

- ✓ Read the problem **several** times.
- ✓ What is the overall idea of the problem?
- ✓ What information is given?
- ✓ What are you trying to find?

2. Devise a Plan:

- ✓ Look for a pattern.
- ✓ Make a list or a table.
- ✓ Draw a diagram of the problem
- ✓ Use trial and error.
- ✓ Use estimation to make an educated guess, then work backwards.
- ✓ Look for a "catch". There may be a trick.
- ✓ Try to express the problem more simply and solve a simpler problem.

3. Carry out the plan:

- ✓ Follow your plan
- ✓ Check each step.
- ✓ Try plan B if plan A doesn't work.

4. Look Back:

- ✓ Can you check your result?
- ✓ Did you answer the question?
- ✓ Is it reasonable?

1-2) Which necessary piece of information is missing and prevents you from solving the following problems?

- 1) A man purchased 5 shirts, each at the same discount price. How much did he pay for them?

Given:

Find:

Missing:

- 2) The bill for your meal totaled \$20.36 including tax. How much change should you receive from the cashier?

Given:

Find:

Missing:

Better Value Questions

$$\text{The **unit price** of a product} = \frac{\text{Total price}}{\text{Total units}}$$

Solve the following problems using the four-step method. If the problem contains information that is not relevant to its solution, identify the unnecessary piece of information.

3) A manufacturer packages its apple juice in bottles and boxes. A 128-ounce bottle costs \$5.39 and a 9-pack of 6.75 ounce boxes costs \$3.15. Which packaging is the better value?

Understand the Problem:

Devise a Plan:

Carry out the Plan:

Look Back:

4) What is the better value: A 16-ounce bottle of Coca-Cola for \$0.75 or a 20-ounce bottle for \$1.00?

5) By paying \$350 cash up front and the balance at \$45 per month, how long will it take to pay for a computer costing \$980?

6) A business has 13,065 packages to send by ground shipping. Each weigh 14 lbs., but a truck can only hold 14,650 lbs. How many trucks will be needed to ship all of the packages?