

## End-of-Chapter Type Problems

**Description** End-of-chapter problems are used to reinforce and apply some concepts and skills learned in the classroom. As in Example 1, when a mathematical procedure is presented in the classroom, students are given numerical practice problems to solve, in order, after class. These numerical problems are usually over-simplified real-life problems calling for direct substitution of values into formulae.

**Example 1** *Nursing Math*

Complete the 10 problems at the end of the Critical Care Math chapter.

Problem 1 – Your patient is ordered Dobutamine at 10mcg/kg/min. The drug is supplied as 500mg in 1000ml. Your patient weighs 180 pounds. How many cc/hr should the patient receive?

**Example 2** Prepare a nursing care plan for a specific patient in your care, using as your guide one of the models discussed in class. The care plan should include the following elements...

**What Outcomes are Assessed?**

- Example 1 is an objective word problem. It assesses the student's ability to perform IV (intravenous) calculation and metric conversions based on known algorithms. Since all the information needed to solve the problem is given in three lines, and there is only one correct answer, it is a well-defined problem. This task assesses only *computational competency*. It does not assess problem-solving or critical thinking skills; neither does it assess functional IV-administration skill.
- Example 2, on the other hand, can assess higher-order thinking skills. To begin with, the problem is always unique since no two patients are exactly alike. The student will have to *differentiate* between various nursing models to choose the one most suitable for this situation. S/he will have to *analyse* patient data, *interpret* subjective messages from the patient, and *diagnose* the problem. Then s/he will have to *design* a care plan that includes setting goals and *prescribing* nursing interventions that are backed by *scientific reasoning*.

**How Authentic is the Task?**

- The nature of the problem in Example 1 is authentic. However, in practice, the nurse will have to make calculations under multiple constraints. In the workplace, this kind of task certainly won't be something you can take home to work on at your own pace.
- Example 2 deals with an actual nursing problem and is very authentic in that respect. It is also an appropriate take-home task as the time it takes to prepare a care plan varies from patient to patient, and from hospital to hospital. However, some nursing schools require students to present nursing care plans in an academic format (e.g., APA), rather than in a professional format. This practice would compromise the authenticity of the task and make it unnecessarily burdensome for students.

**What Kind of Learning is Promoted?**

- Example 1 type assessment questions are commonly found in nursing professional exams and, hence, nursing students must be able to answer this type of questions. Whether this type of assessment task

promotes rote learning or not depends a lot on whether students learn the computational skill out of the context of practice. If this knowledge is learned out of context, it will be forgotten soon after the test.

- Example 2 type assessment promotes an *integrative* approach to learning that is *active*, *investigative*, and *problem-based*. The student will have to integrate learning from different subjects such as anatomy, physiology, and psychology with nursing knowledge. This type of task will promote *problem-solving* as well as *critical-thinking* skills.