ExamView, My Way

by Tim Fahlberg, International Community School , Kirkland, WA

Let's face it. Teachers like you and I care deeply about improving student learning, so we work hard at creating and sharing good ideas, materials, and tools. That's why I'd like to share with you some information about Exam*View,* dynamic questions (a phenomenal new feature of version 4.0), bimodal questions, and graphs. I'm convinced that by using Exam*View* 4.0 you too will save time and dramatically improve the quality of your assessments, worksheets, and study guides.

State of the Art Test Generator Software
As a high school and college math/technology teacher for over 10 years I've had the opportunity to use a lot of software to help improve my teaching and student learning. I've investigated and/or tried most of the commercial test generator packages but generally found them expensive, dated, or lacking in one or more areas. At least this was true until I found Exam*View,* which has proved to be an excellent tool to create paper and online assessments, worksheets, and study guides. ExamView is an up-to-date, application with numerous features, a proven track record (distributed with thousands of textbooks in most subjects), and-important to me-advanced equation editing capabilities.

Currently, I'm experimenting with putting study guides and practice tests online for my students. This allows me to take advantage of Exam*View's* automatic feedback capabilities. The program provides the flexibility to use my own website, the ExamView test-hosting solution, or Blackboard/WebCT. Any of these options are great because they provide immediate feedback about my students' performance.

Exam*View* 4.0's Dynamic Questions
While previous versions of Exam*View* have proven to be beneficial, I'm now experiencing the tremendous rewards of using the new Exam*View* 4.0 algorithmic capabilities. Using dynamic questions speeds assessment and worksheet production because it means that a single question can be used to dynamically create many questions of the same form by clicking a button. So, rather than having to create questions one by one, you can now either find a ready-made dynamic question (say from a textbook's question bank), or create one yourself and then use it one or more times to create similar questions containing different values, units of measure, and/or graphs and diagrams. And, the new graphs (Cartesian, Polar, Line) and pictures in Exam*View* 4.0 can also be created to change dynamically as part of a question.

Dynamic Answers and Solutions Too!
Algorithms can be used to create dynamic questions and complete dynamic solutions. Here are several examples that show dynamic questions in action. Notice how the question, answer, and solution all change each time the **Calculate Values** button is pressed. Imagine how much work this could save you since Exam*View* (and not you) automatically creates questions, answers, and solutions.

File   Edit   View   Question   Help

100%   ?

1. Given $f(x) = x^3 + 2x^2 - 2x - 1$.
   Evaluate $f(-3)$ by hand showing all steps.

   ANS:
   $f(-3) = -4$

   Solution:

   $f(-3) = (-3)^3 + 2(-3)^2 - 2(-3) - 1$
   $f(-3) = (-27) + 2(9) - 2(-3) - 1$
   $f(-3) = -27 + 18 + 6 - 1$
   $f(-3) = -4$

3. Find the value of x to the nearest tenth:

   x

   22 mm

   12 mm

   Drawing not to scale.

   ANS:
   $a^2 + b^2 = c^2$ where $a = 12\,mm; b = 22\,mm$

   $12^2 + 22^2 = x^2$

   $144 + 484 = x^2$ or $x^2 = 144 + 484$

   So $x^2 = 628 \Rightarrow x = \sqrt{628}$

   $x = 25.1\,mm$

4. Calculate: $\int_0^3 2x\,dx$

   ANS:
   $\int 2x\,dx = x^2 + c$

   $\therefore \int_0^3 2x\,dx = (3^2 + c^2) - (0^2 + c^2) = 9$
   However it's fine to write:

   $\therefore \int_0^3 2x\,dx = 3^2 - 0^2 = 9$

Easy Worksheet Creation
Need a custom worksheet but don't have the time to create one from scratch? Use dynamic questions! Exam*View* is great for creating tests, but it's also a wonderful tool for building worksheets. Simply select the questions you want. Then, duplicate those questions as many times as needed. Each time the program duplicates a question it calculates a new version. That's all it takes to create a worksheet.

You can save the worksheet, print it, or turn it into an online worksheet. Since you built the worksheet using dynamic questions, it takes one click to create a completely new worksheet. Imagine having an almost unlimited number of worksheets at your disposal? Cool eh?

New Bimodal Question Type
The new bimodal question type allows questions to be displayed either as Multiple Choice or as Short Answer questions. This feature is particularly useful to create a worksheet for students. Simply add one or more questions (dynamic questions are especially good). You can then toggle questions individually, or choose the option to convert all questions to short answer. Instantly, this feature turns a multiple choice worksheet into one that requires my students to show their work.

Graphs, Graphs, Graphs!
The new graphing tool is great! Before Exam*View* 4.0, it was necessary to copy and paste graphs into my tests. Now it's a snap to insert various types of graphs (Cartesian, polar, and number line). Simply select the graph type and set a few options to insert a graph. And, since the graphing tool is built into the program, you can easily create dynamic graphs.
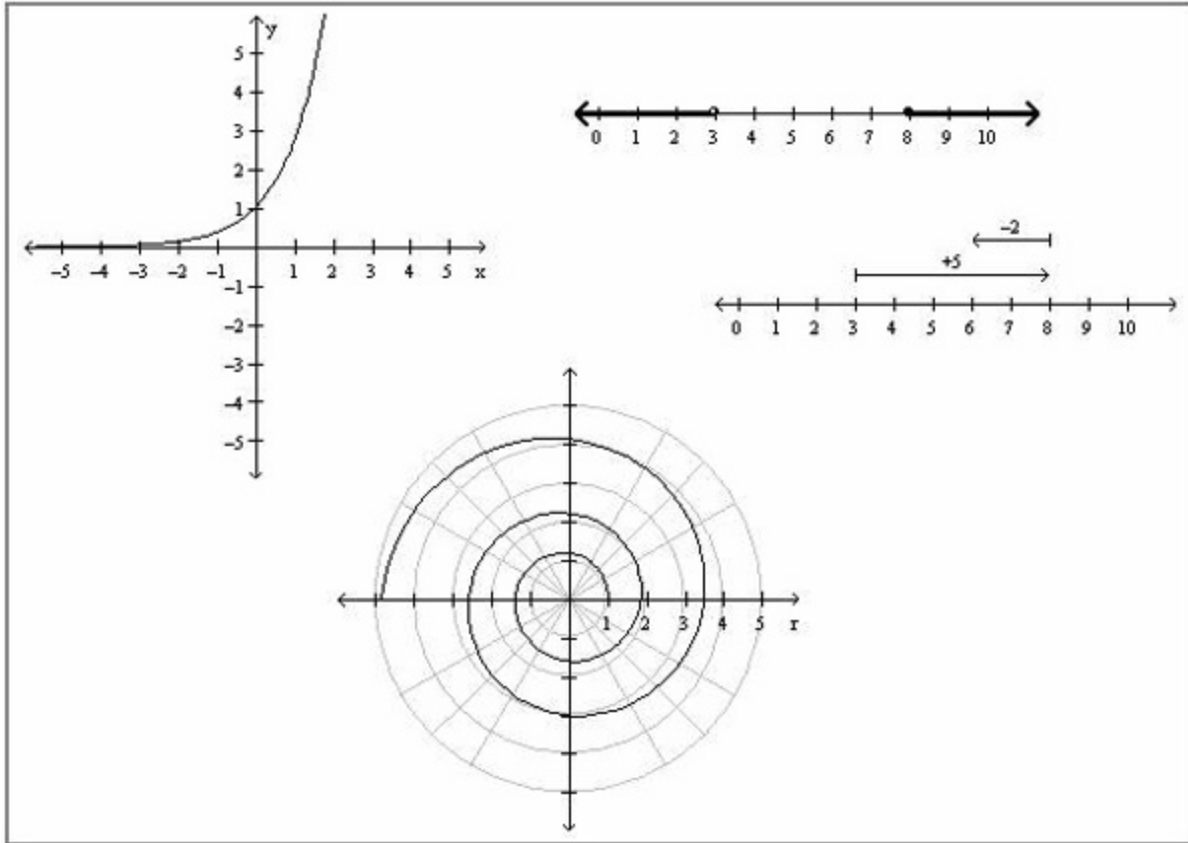
How to Create a Dynamic Question:
Building a dynamic question in Exam *View* is similar to creating formulas in a spreadsheet program like Excel. Using special keywords and standard math notation, it's fairly straight-forward to create a dynamic question.
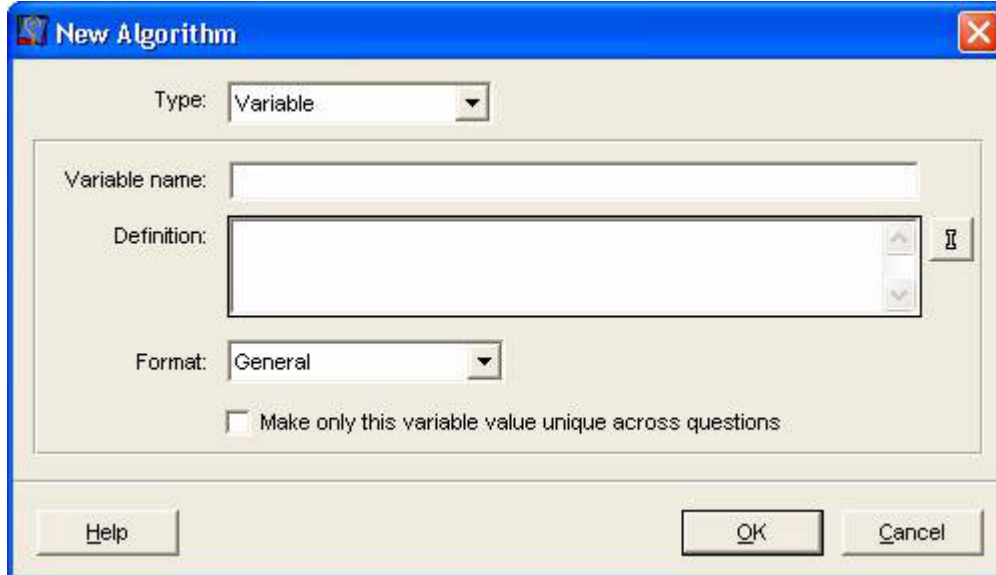
Follow these simple steps to create a dynamic question that looks like this:

Solve: 2x + 3 = 5 which is of the form ax + b = c
where *a, b,* and *c* are integers.

To keep things simple let's create equations where *a, b*, and *c* are each between 2 and 10 and make the solution, *x,* an integer.

1. Start Exam *View* and choose to create new question bank.
2. Choose to create a Numeric Response question.
3. Choose *Algorithm Definitions* from the **Edit** menu.

4. Click the **New** button in the Edit Algorithm Definitions window to display the window shown below.

5. Type **a** for the variable name, **range(2,10,1)** for the definition, and then click the **OK** button. You just created a new variable. Each time you calculate new values, the program will randomly select an integer value between 2 and 10 inclusive.
6. Repeat the steps to create two new variables (*b* and *x*) each with the same definition as variable *a*.
7. Click **New** once more to create a variable called *c*. Enter **a*x+b** for the definition and click **OK.**

    Your algorithm definitions should look like this:

8. Click the **Done** button to put away the Edit Algorithm Definitions window.
9. Enter the question as follows:
    - Type **Solve:**
    - Choose *Variable* from the **Insert** menu and insert variable *a*.
    - Type **x+** and italicize the "x.

        Note that you are *not* inserting the variable *x* in the question. You'll insert it in the answer.
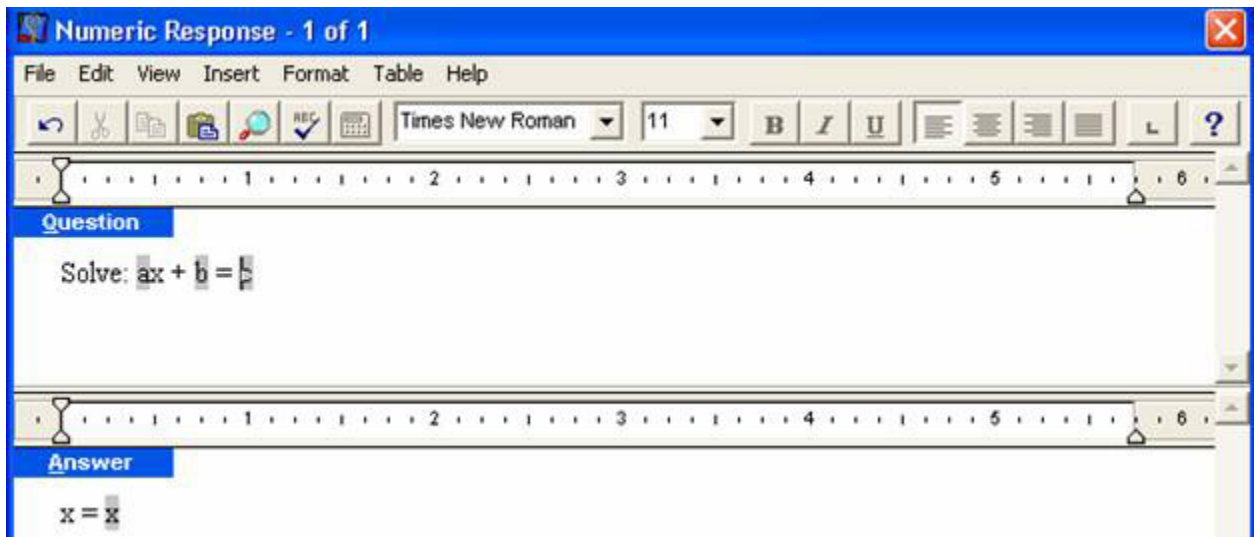
    - Insert the variable *b.*
    - Type = and insert the *c* variable.
    - Add spaces before and after the symbols + and =.

10. Verify that the equation in the *Question* area looks like one shown in the figure.
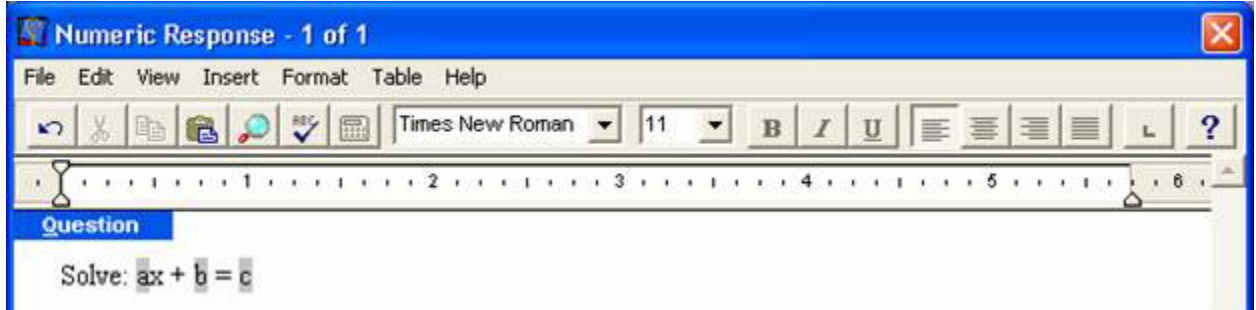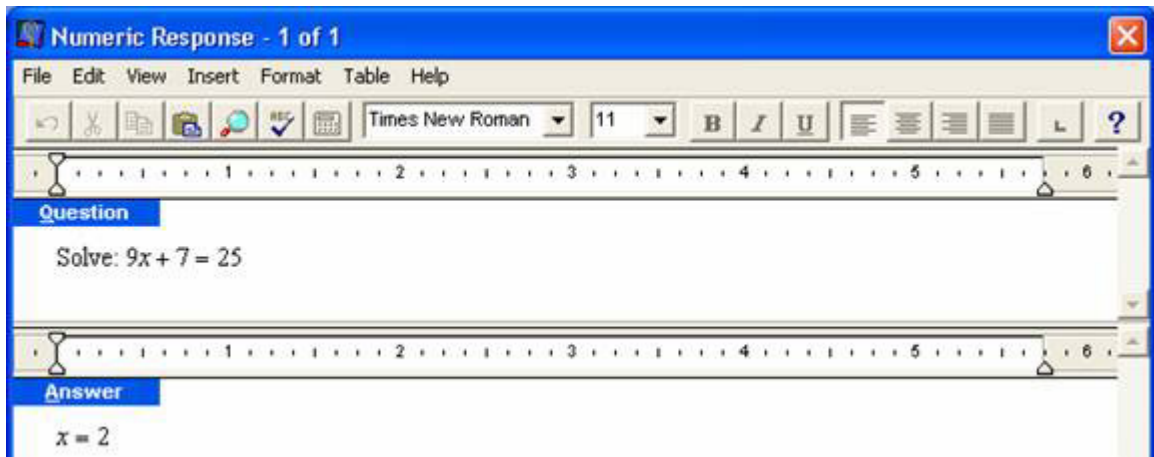

11. Click in the *Answer* area.
12. Type **x** = and insert the variable x. (See the figure below.)

13. Now click (the **Calculate Values** toolbar button). You should see the highlighted variables

(*a, b, c,* and *x*) change to numeric values - something like the figure below. Click several times to see the values change.

Pretty cool, huh?

14. Now click **Record** and save your work.

Congratulations, you just created your first dynamic question!

Switch to the Test Builder, choose to create a new test, and add the question you just created to the test. Duplicate the question multiple times to create a number of similar questions for a quiz or worksheet. (Pressing **Ctrl+D** or **Cmd+D** repeatedly is the quickest way to do this.)

If you duplicated the question, one or more of the questions may have the same values. Using some of the more advanced algorithm features, you can set up a question to guarantee that the values are unique. Explore the comprehensive online help if you need assistance building dynamic questions.

The new features of Exam*View* 4.0 have saved me hours of work and have helped me significantly improve my assessments, worksheets, and study guides, thus improving my students' learning. Try Exam*View* 4.0 and I'm sure you'll have the same results!

Tim Fahlberg
International Community School
Kirkland, WA