

eFundi Tutorial: Test & Quizzes

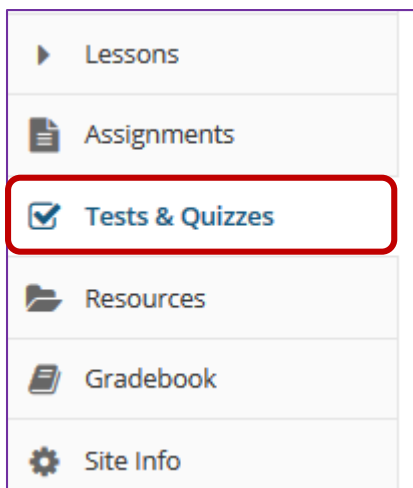
How do I create a calculated question



This allows for a calculated question to be added to a new or existing assessment. A calculated question calculates new answers for every test, based on variables whose value changes each time. The answer is based on a formula, using those variables.

Step 1: Go to Tests & Quizzes

Select the **Tests & Quizzes** tool from the Tool Menu of your course.



If this tool is not visible on the left, it still needs to be added by the site Instructor.

For steps in adding a tool to your eFundi site access the tutorial on *How to add/remove tools on a site* from the [Support tutorial site](https://longsight.screenstepslive.com/s/4586/m/76781)

Step 2: Select an assessment

Questions may be added to any assessment. Select an existing assessment or create a new one.

Create a New Assessment

Assessments Question Pools Event Log User Activity Report

Create an Assessment

OR

Create from Scratch

Assessment Title

Create using assessment builder
 Create using markup text

Import from File (XML or ZIP)

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Action	Title	Last Modified	Modified Date
-- Select Action --	1 new		NADINE SMIT

For more information on creating new assessments, see [How do I create an assessment?](#)

Or edit an existing assessment

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Action	Title	Last Modified	Modified Date
<input type="button" value="-- Select Action --"/>	1 new		NADINE SMIT

- Select Action --
- Edit**
- Preview
- Print
- Settings
- Duplicate
- Export
- Remove

Step 3: Select Calculated Question from drop-down menu

After selecting Calculated Question from the drop-down menu, the program will open options for the question.

The image shows a software interface for adding a question. On the left, there are two buttons: 'Add Question' and 'Update Points'. To the right of 'Add Question' is a dropdown menu with the text 'select a question type'. The dropdown menu is open, showing a list of question types: 'select a question type', 'Audio Recording', 'Calculated Question' (which is highlighted in blue), 'File Upload', 'Fill in the Blank', 'Hot Spot', 'Matching', 'Multiple Choice', 'Numeric Response', 'Short Answer/Essay', 'Survey', 'Survey - Matrix of Choices', 'True False', and 'Copy from Question Pool'.

Step 4: Set the point value for the question

The image shows a form field for setting the point value. The label 'Answer Point Value' is on the left. To its right is a text input box containing the number '1.0'.

Enter the point value for this question. Questions may be worth any point value you choose.

Tip: Keep in mind that the point value of all the questions in the assessment will equal the point value of the assessment in the Gradebook. So, if you want your assessment to be worth a total of 100 points, you should assign point values to your questions accordingly.

Step 5: Display points?

The image shows a form field for displaying the point value. The label 'Display Point Value while student is taking the exam' is on the left. To its right are two radio button options: 'Yes' (which is selected) and 'No'.

Do you want students to see the point value as they are taking the test? If so, leave the default setting of **Yes**. If you prefer that students do not see the point value for the question, select **No**.

Step 6: Add Question Text

Type the **Question Text** into the text box provided. This is the information that the student will see, including the variable and formula placeholders (see examples below).

Question Text

A calculated question calculates new answers for every test, based on variables whose value changes each time. The answer is based on a formula, using those variables.

Instructions

1. Define variables in the question text by surrounding the variable name with single curly braces (e.g. {x} and {y})
When a student views the question, variable placeholders will be replaced with the variable values
2. Define formula placeholders in the question text by surrounding the formula name with double curly braces (e.g. {{z}})
When the student views the question, formula placeholders will be replaced with input boxes
Internal calculations using the variables can be added using double square brackets [[]]. The calculation result will be shown in the question text (e. g. [[{x}+{y}]]).
3. After writing the question text, press the button to Extract Variables and Formulas and Calculations
 - a. Set the min and max values for the variables
 - b. Define formula expressions in terms of the variables, using single curly braces (e.g. {x} - {y})

Acceptable Characters

LaTeX markup may conflict with notation required for this question type.

Example

Kevin has {x} apples. He buys {y} more. Now Kevin has [[{x}+{y}]]. Jane eats {z} apples. Kevin now has {{w}} apples.

The formula w in the example above would be defined as: {x} + {y} - {z}

▶ [Show/Hide more instructions and examples](#)

Show Rich-Text Editor (and character count)

Solve: COS({a}) * ((c) - {b}) = {{z}}

Variables: Define variables to use in this question below. Reference them in the question text by putting them in single curly braces eg. {x}. Variable names are alpha-numeric but must begin with an alpha character.

Example: Kevin has {x} apples. Jane eats {y}. How many does Kevin have now? {{z}}

Formulas: Place double curly braces (e.g. {{y}}) around a formula name, to define where the student's input box will display. Formula names are alpha-numeric but must begin with an alpha character.

Example: Solve: COS({a}) * ((c) - {b}) = {{z}} Formula z would be COS({a}) * ((c) - {b})

Keep in mind the following:

- You may define acceptable tolerance as a constant (0.01) or percentage (1.5%) of the answer. (Defaults to 0.01.)
- Variables and formulas support decimals. Default is 3.
- Valid Operators: + - * / ^ ()
- You can use the following math functions: SIN, COS, TAN, ASIN, ACOS, ATAN, ABS, EXP, SIGN, SQRT, FACTORIAL, LOG10, LOG, and LN.
- There are two built-in constants, PI(3.14...) and e(2.718...). Use them in your answer expression.
- Variables and Formulas cannot have the same name.

Note: To edit with **Rich-Text Editor**, click the hyperlink to open the full menu.

Tip: See <http://mathparser.org/mxparser-math-collection/> for the full set of valid math functions and operators.

For training in the use of the [Rich Text Editor](#) click on this link, or go to the eFundi Staff Training site on eFundi to access it there.

Step 7: Click Extract Variables and Formulas

[Show Rich-Text Editor \(and character count\)](#)

Solve: $\text{COS}(\{a\}) * (\{c\} - \{b\}) = (\{z\})$

Attachments
No Attachment(s) yet

Add Attachments

Extract Variables, Calculations, and Formulas from Question Text

Variables

Variable Name	Min	Max	Decimal Places
No variables have been defined			

Click the **Extract Variables and Formulas** button to create the variables and formulas.

Step 8: Define ranges of variable values

Variable Name	Min	Max	Decimal Places
a	<input type="text" value="1"/>	<input type="text" value="5"/>	<input type="text" value="3"/> ▼
b	<input type="text" value="8"/>	<input type="text" value="10"/>	<input type="text" value="3"/> ▼
c	<input type="text" value="2"/>	<input type="text" value="4"/>	<input type="text" value="3"/> ▼

Change the Min, Max, and Decimal Places for all of the variables to define their ranges of valid values.

Step 9: Enter the formula

Formulas

Define formula expressions in terms of the variables, using single curly braces (e.g. {x} - {y})

Valid operators: + - * / ^ ()

You can use the following math functions: SIN, COS, TAN, ASIN, ACOS, ATAN, ABS, EXP, SGN, SQRT, LOG10, and LN.

There are two built-in constants, PI(3.14...) and e(2.718...). Use them in your formula expression.

Formula Name	Formula	Tolerance	Decimal Places
z	<input type="text" value="COS({a}) * ({c}-{b})"/>	<input type="text" value="0.01"/>	<input type="text" value="3"/> ▼

Enter the mathematical expression for each Formula, inserting the Variables where needed.

Step 10: Add attachment. (Optional)

Attachments

No Attachment(s) yet

Click **Add Attachments** to browse for and select a file attachment if desired.

Step 11: Assign to part. (Optional)

Assign to Part ▼

If you have multiple parts in your assessment, you may assign the question to a different part.

Step 12: Assign to pool. (Optional)

Assign to Question Pool	Select a pool name (optional) ▼
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If you have an existing question pool and would like to copy this question to the pool, select the pool name here.

Note: You may also [add a question directly to a question pool](#).

Step 13: Add feedback for correct answer and/or incorrect answer. (Optional)

Correct/Incorrect Answer Feedback
Correct Answer (optional)
Show Rich-Text Editor (and character count)
<div style="border: 1px solid gray; height: 150px; width: 100%;"></div>
Incorrect Answer (optional)
Show Rich-Text Editor (and character count)
<div style="border: 1px solid gray; height: 150px; width: 100%;"></div>

Feedback is optional text available for the student to review after the particular question is graded. For numeric response questions, the feedback option is offered for correct and/or incorrect answers, if desired.

Note: To edit with **Rich-Text Editor**, click the hyperlink to open the full menu.

Step 14: Click Save



Click **Save** to save the question (or **Cancel** to exit).