

Formula Questions in MyCanvas

Who should use this document?

MyCanvas allows for the creation of multiple question types in quizzes, including Formula questions. This document will instruct faculty how to create these Formula type questions in both the Classic Quizzes and New Quizzes quiz tools.

Classic Quizzes vs New Quizzes

Who should use Classic Quizzes?

Most question types are supported in Classic Quizzes. Regarding Formula questions, Classic Quizzes settings limit to 3 decimal places. Question Banks in Classic Quizzes can be bookmarked to use in a different course with ease. Classic quizzes supports Respondus Lockdown Browser integration.

Who should use New Quizzes?

New Quizzes supports Scientific Notation question types and the settings allow for more than 3 decimal places. However, Respondus Lockdown Browser integration is not supported in New Quizzes. Faculty should take these features and limitations into consideration before building their quiz questions.

Comparison Documentation

For a more comprehensive understanding of what Classic Quizzes and New Quizzes offer, faculty should review the [Feature Comparison Document](#).

Creating Formula Questions in Classic Quizzes

1. Formula Question

Once a user is at the stage of creating a quiz question (whether in a question bank or a quiz):

- a) Select **+ New Question**.
- b) Use the dropdown menu option and choose **Formula Question**.
- c) In the Question field, add the question prompt with any supporting media and write the equation that includes the variables to be defined. Variables should be enclosed by square brackets, which allows the system to recognize them as needing to be defined. Once this information has been created, users will need to click outside of the box to activate the variables.

Question Formula Question

Enter your question, build a formula, and generate a set of possible answer combinations. Students will see the question and the possible answer combinations.

Question:
You can define variables by typing variable names surrounded by brackets
(i.e. "What is 5 plus [x]?") [Need help?](#)

12pt ▾ Paragraph ▾ | **B** *I* U A ▾ □ ▾ ^{T²} ▾ | ≡ ▾ ⋮

Additional info can go here

Insert an image or diagram if needed

$[x]+[y]=$

Figure 1: Image of question type selection and question field

2. Variable Definitions

Enter the definitions for the created variables, meaning the range of possible values to the variables. Users will need to ensure the number of decimal places required is selected, and the range of the variables is applied. If there is a constant variable required, or an exact number is to be used as a variable, the Min and Max ranges will be the same.

Answers:
Variable Definitions

Once you have entered your variables above, you should see them listed here. You can specify the range of possible values for each variable below.

Variable	Min	Max	Decimal Places
x	<input type="text" value="5"/>	<input type="text" value="10"/>	<input type="text" value="0"/>
y	<input type="text" value="25"/>	<input type="text" value="50"/>	<input type="text" value="0"/>

Figure 2: Image of Variable Definitions

3. Formula Definition

Define the formula for the question. Using the established variables, users will now need to create the formula the students will need to solve. No brackets around the variables or equal sign are required. If the formula works, the tool will create a result using the variable definitions. If the formula is entered incorrectly, the tool will notify the user it has failed.

Formula Definition
Next you'll need to write the formula or formulas used to compute the correct answer. Just use the same variable names listed above.

Formula
x+y

Save Drag to reorder

Result
= 21

Figure 3: Image of a successful formula definition

Formula Definition
Next you'll need to write the formula or formulas used to compute the correct answer. Just use the same variable names listed above.

Formula
x+y
x+y=

Result
= 21

unexpected equals at 4

the last formula compute the final answer

Drag to reorder

Figure 4: Image of a failed formula definition

4. Generate Possible Solutions

The last step to creating a Formula question is to generate the possible solutions. This step instructs the quiz tool on how many possible questions and answers will be created using the defined variable possibilities. For example, if there are 25 students in a course, an instructor may want 25 different possible solutions to increase the likelihood of each student getting a different version of this question.

To generate possible solutions, users will need to scroll to the Generate Possible Solutions field, and enter the amount of possible solutions in the “Offer” field. Once entered, click “Generate”.

Generate Possible Solutions
Finally, build as many variable-solution combinations as you need for your quiz.

Offer possible value combinations (max 200)

allow an error margin of +/-

x	y	Final Answer
8	37	45
6	38	44
7	32	39
--	--	--

Figure 5: Image of Generate Possible Solutions field

Once this is completed, click “Update Question” to save the question.

For more information on Quizzes and Question Banks

CTL provides a recording of the [Quizzes Webinar](#) for more information on creating Quizzes and Question Banks. For more information or more detailed instruction, please contact your Educational Technologies Specialist or ctl@mohawkcollege.ca.

Creating Formula Questions in New Quizzes

1. Formula Question

Once a user is at the stage of creating a quiz question (whether in a question bank or a quiz):

- Select **+ New Question**.
- Use the pop-up to select **Formula Question**.
- Enter a Question Title in the bar at the top.
- In the Question field, add the question prompt with any supporting media and write the equation that includes the variables to be defined. Variables should be enclosed by backticks, which allows the system to recognize them as needing to be defined.

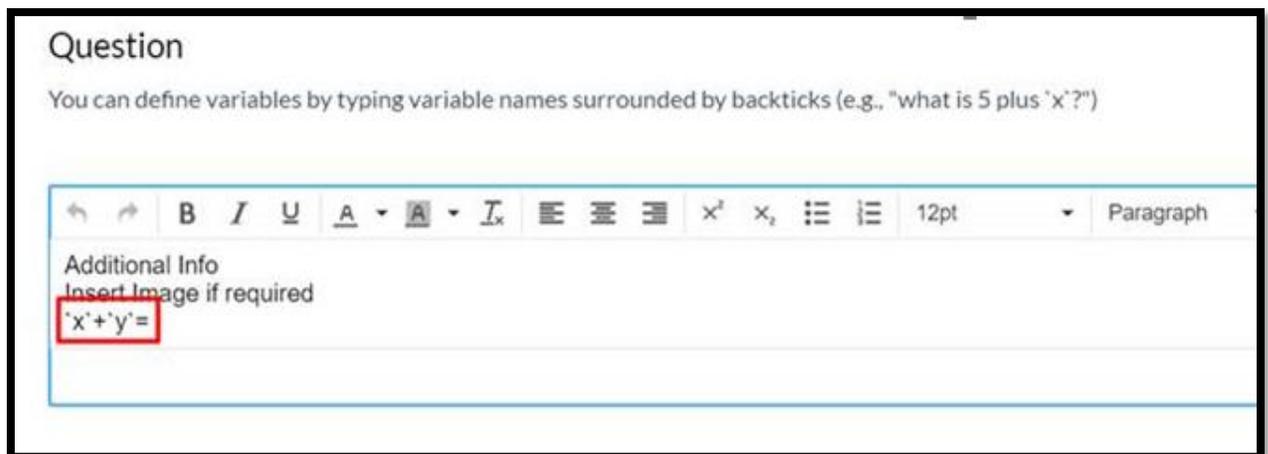


Figure 6: Image of Question field in New Quizzes

2. Answers

Enter the definitions for the created variables, meaning the range of possible values to the variables. Users will need to ensure the number of decimal places required is selected, and the range of the variables is applied. If there is a constant variable required, or an exact number is to be used as a variable, the Min and Max ranges will be the same.

Answers

Once you have entered your variables above, you should see them listed below. You can specify the range of possible values for each variable below.

Variable	Min	Max	Decimals
x	5.000000i	10.000000i	8
y	25	50	0

Figure 7: Image of Answers field in New Quizzes

3. Formula Definition

Define the formula for the question. Using the established variables, create the formula the students will need to solve. No brackets around the variables or equal sign are required.

Formula Definition

Next, write the formula or formulas used to compute the correct answer. Use the same variable names listed above. (e.g., "5 + x")

x+y

Figure 8: Image of Formula Definition field in New Quizzes

4. Generating Possible Solutions

The last step to creating a Formula question is to generate the possible solutions. This step instructs the quiz tool on how many possible questions and answers will be created using the defined variable possibilities. For example, if there are 25 students in a course, an instructor may want 25 different possible solutions to increase the likelihood of each student getting a different version of this question.

To generate possible solutions, users will need to scroll to the **Generate Possible Solutions** field, and enter the amount of possible solutions in the **Number of Solutions** field. Select whether or not to **display solutions as scientific notation** (optional). Once the number of variables has been entered, click **Generate**.

Generate Possible Solutions
Finally, build as many variable-solution combinations as you need for your quiz.

Number of solutions:

Decimal places:

Display as Scientific Notation

x	y	Result
8.76933108	48	$6 \cdot 10^1$
9.36223743	44	$5 \cdot 10^1$

Figure 9: Image of Generate Possible Solutions field in New Quizzes

For more information on Quizzes and Question Banks

CTL provides a recording of the [Quizzes Webinar](#) for more information on creating Quizzes and Question Banks. For more information or more detailed instruction, please contact your Educational Technologies Specialist or ctl@mohawkcollege.ca.