

Variable Numeric question type

Please simplify this formula:

$$\int_2^7 49x dx$$

Answer:

Please simplify this formula:

$$\int_2^6 36x dx$$

Answer:

An example of Variable Numeric question type

Overview:

This guide will show you how to create a Variable Numeric question type.

What to know:

The features of Variable Numeric question type is listed below.

1. It supports random variables into the questions. (As can be seen from the example above, one student sees the question as shown in the first picture, while another student sees the question as shown in the second picture. It is because this question uses random variables.)
2. It supports variables defined by other expressions.
3. It supports variables with pre-defined values.
4. It supports answer tolerance and the use of units.

Table of Contents

[Step 1: Access the Quiz activity where you want to create the question](#)

[Step 2: Edit quiz](#)

[Step 3: Add a new question](#)

[Step 4: Choose a question type](#)

[Step 5: Give a question name](#)

[Step 6: Give the question text](#)

[Step 7: Set up the full mark and general feedback \(optional\)](#)

[Step 8: Set up variables](#)

[Step 9: Give the correct answer](#)

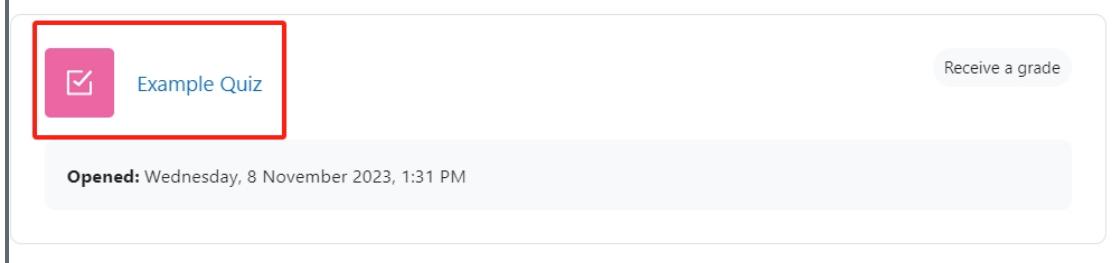
[Step 10: Give partially correct answers \(optional\)](#)

[Step 11: Save the question](#)

Step 1: Access the Quiz activity where you want to create the question

In your module area/course, click the link of the Quiz activity where you want to create a question.

▼ Topic 5

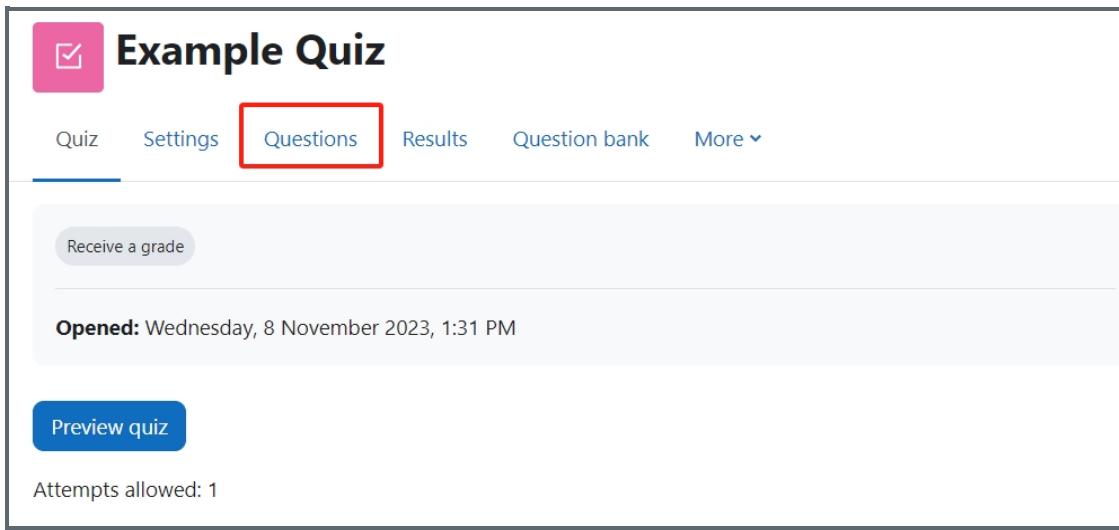


The screenshot shows a 'Topic 5' page with a 'Example Quiz' card. The card has a pink header with a checkmark icon and the text 'Example Quiz'. It includes a 'Receive a grade' button and a timestamp 'Opened: Wednesday, 8 November 2023, 1:31 PM'.

Note: If an appropriate Quiz activity doesn't exist in your module area/course, please see [Add a quiz](#) for details of how to create one.

Step 2: Open the 'Questions' tab

1. Open the 'Questions' tab



The screenshot shows the 'Example Quiz' page with the 'Questions' tab selected, highlighted by a red box. The tab bar also includes 'Quiz', 'Settings', 'Results', 'Question bank', and 'More'. Other UI elements include a 'Receive a grade' button, a timestamp 'Opened: Wednesday, 8 November 2023, 1:31 PM', a 'Preview quiz' button, and a note about 'Attempts allowed: 1'.

Step 3: Add a new question

1. On the following page, click the 'Add' link.
2. Click the 'a new question' link in the dropdown menu.



Questions

Questions: 1 | This quiz is open

Maximum grade

Save

Repaginate

Select multiple items

Total of marks: 1.00



Page 1

1 The Loch Ness Monster is a type of? The Loch Ness Monster ...

Shuffle ?

Add ▼

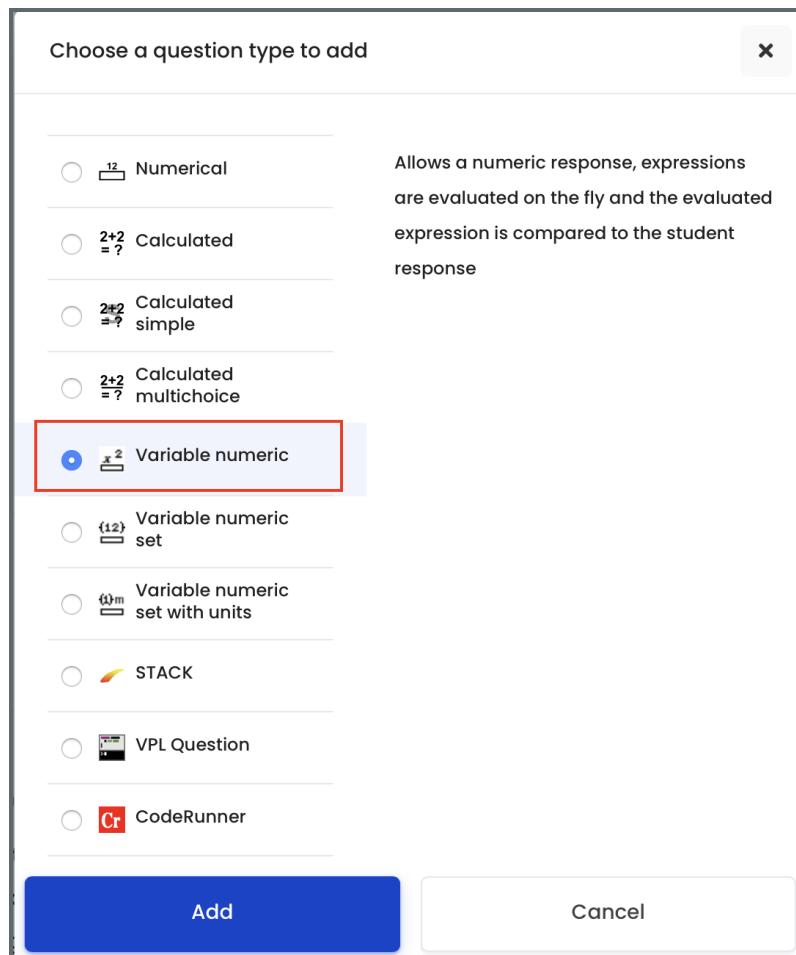
+ a new question

+ from question bank

+ a random question

Step 4: Choose a question type

1. Locate and select the Variable Numeric question type from the pop-up window.
2. Click the 'Add' button.



Step 5: Give a question name

Give a question name in the 'Question name' setting.

Question name ⚠

Variable numeric

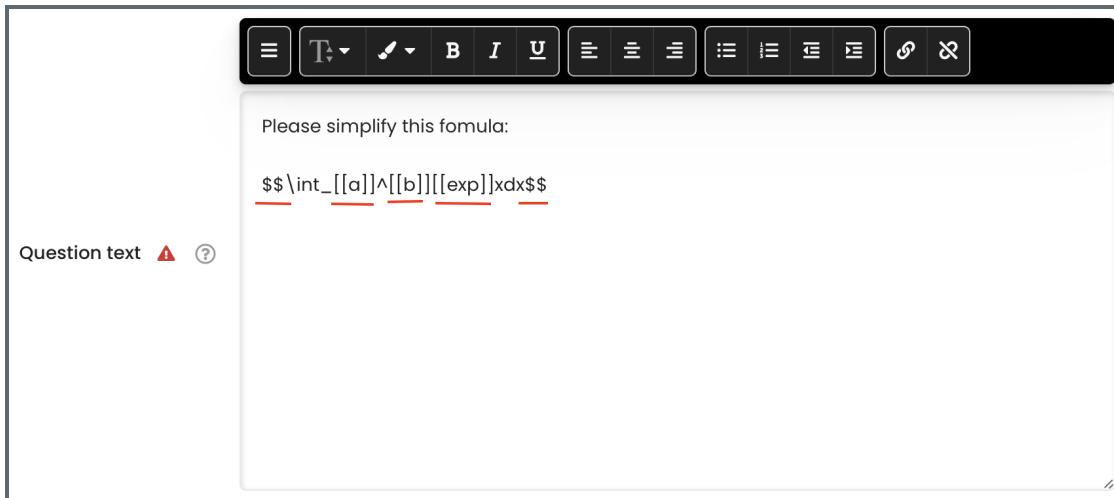
Step 6: Give the question text

Type in the question in the 'Question text' box, such as the example in the screenshot below.

The special Mathematical formulas and symbols can be written in Latex/Tex. You either edit the formula in Latex editors or click the icon on the top left of the text box and click the icon highlighted icons in the screenshot to edit Latex formula.

Hint:

1. The random variables, such as variable a and b, need to be covered with '[' and ']' so that the system knows it is a variable.
2. The whole formula needs to be covered with '\$\$' before and after.



Step 7: Set up the full mark and the general feedback (optional)

If you do not need to change the full mark and give general feedback, you can skip this step.

1. Under the 'Default mark', you can change the full mark of this question from 1 mark to another mark.
2. Under the 'General feedback', you can add feedback that every student will see.

Step 8: Set up variables

There are two types of variables:

1. Calculated variables: random variables. e.g. variables a and b in the screenshot below.
2. Predefined variables: variables with pre-defined values. e.g. variable exp in the screenshot below.

Define variables:

1. To define a random variable , please write 'rand_int()', which means random integer. Then, in the bracket, please write the range of the random integers. e.g. rand_int(1, 4) means random integer between 1 and 4.
2. This question type supports most of the commonly used expressions. Please follows the expressions that this question type supports to define your variables as the following image.
3. To define a predefined variable, the teacher needs to define the values that can be given to this variable.

Variables

	Calculated variable ↴
Variable 1 ⓘ	<code>a=rand_int(1,4)</code>
Value ⓘ	2
	Calculated variable ↴
Variable 2 ⓘ	<code>b=power(2,a)</code>
Value ⓘ	8
	Predefined variable ↴
Variable 3 ⓘ	<code>exp</code>
Value ⓘ	64

average(a, b...): Returns the average of a list of arguments.
max(a, b...): Returns the maximum value in a list of arguments
min(a,b...): Returns the minimum value in a list of arguments
mod(dividend, divisor): Calculates the remainder of a division.
ln(number): Returns the natural logarithm of number.
log(number): Returns the natural logarithm of number.
pi(): Returns the value of the number Pi.
power(base,exponent): Calculates the value of the first argument raised to the power of the second argument.
round(number, count): Rounds a number to a predefined accuracy.
sqrt, abs, exp
sin, sinh, arcsin, asin, arcsinh, asinh
cos, cosh, arcos, acos, arccosh, acosh
tan, tanh, arctan, atan, arctanh, atanh

Step 9: Give the correct answer

1. You can type in the correct answer in the 'Answer' setting.

For variables with random values, such as variable 'a' and 'b' here, it needs to be covered within '[[]]', so that ICE recognizes them as variables.

2. You also need to add error (so-called 'tolerance') and a grade to this answer.
3. Define the grade of this answer. If it is the correct answer, it is 100% in grade.

Answers

For all answers

Require scientific notation

No

Correct answers

You must provide at least one possible answer. Answers left blank will not be used. "*" can be used as a wildcard to match any number. The first matching answer will be used to determine the score and feedback.

Answer 1

Answer 1	2	Accepted error +/-	0.01	Significant figures	Unspecified <input type="button" value="▼"/>
Grade	100%	<input type="button" value="▼"/>			



Feedback

Give feedback and partial credit where answer is partially wrong

If numerically correct

No

If scientific notation required but not used

No

If power of 10 is off

No

If rounding is incorrect

No

For each error deduct

None

Step 10: Give partially correct answers (optional)

You can also add partially correct answers with the relevant grades and feedback in 'Answer 2' and 'Answer 3' part (optional). (If you do not need to do it, you can skip this step.)

Answer 2

Answer 2	Accepted error +/-	Significant figures	Unspecified <input type="button" value="▼"/>
Grade	None <input type="button" value="▼"/>	<input type="button" value="▼"/>	



Feedback

Give feedback and partial credit where answer is partially wrong

If numerically correct

No

If scientific notation required but not used

No

If power of 10 is off

No

If rounding is incorrect

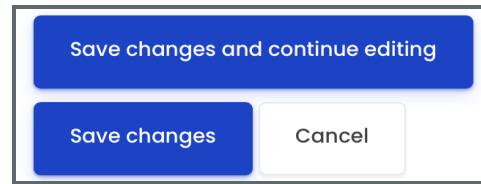
No

For each error deduct

None

Step 11: Save the question

Click 'save changes and continue editing' or 'save changes' button to save the question.



Tips:

The random variables, such as variable a and b, need to be covered with '[[]]', the whole formula needs to be covered with '\$\$' before and after so that the system knows it is a random variable.

Note:

For more information about Variable Numeric question type, please access the official documentation:

<https://www.open.edu/openlearncreate/mod/oucontent/view.php?id=52747§ion=2.1.2>

Online URL: <https://knowledgebase.xjtu.edu.cn/article/variable-numeric-question-type-178.html>