Educational Technology Department
Langara College
edtech@langara.ca

Regular Expressions (Regex)

[Regular Expressions on D2L's website](#)
[D2L Video on Regex](#)
[Regex Checker](#)

What is Regex?

Regular expressions give an instructor the ability to specify a larger range of responses as acceptable when using auto-graded quiz questions. For example:

- **colou?r** means that either "color" or "colour" are accepted answers.
- **250(\.0+)?** means that any of 250 or 250.0 or 250.000000 will be accepted

A regular expression uses both alpha-numeric and meta-characters in patterns that are matched with the text in the students' answers.

The answer key can be set to Regex for the following question types: **short answer, multi-short answer, fill in the blanks, arithmetic,** and **significant figures**.

Commonly used Regex (for an extended list see D2L's website link above):

\,\s*Sep(t)?\.?\s*\[fifth|5th|5]

Character	Description	Examples	Matches
\	Marks the next character as a special character	\.	. (single period) . normally matches any single character and \ is used to escape it so \. literally matches a single period
*	Matches preceding character or sub-expression **zero or more** times * can also be expressed as **{0,}**	be* zo* 10*	matches b or be or beeeeeeeeee matches z and zoo matches 1 or 10 or 1000 or 100000
+	Matches the preceding character or sub-expression one or more times. + can also be expressed as **{1,}.**	be+ \.0+	matches be or bee but not b means a period followed by 1 or more 0s
?	Matches the preceding character or sub-expression zero or one time ? can also be expressed as {0,1}	colou?r	matches colour or color

Character	Description	Examples	Matches
()	Parentheses create a sub-string or item that you can apply meta characters to	a(bee)?t 250(\.0+)?	matches at or abeet but not abet matches 250 or 250.0 or 250.00
^	Matches the position at the beginning of the input string.	^cat ^3	matches **cat**astrophe or **cat**amaran but not bobcat matches 30 or 3400 but not 53
$	Matches the position at the end of the input string.	cat$	matches bob**cat** but not catamaran
x|y	Matches x **or** y	July (first|1st|1)	matches July 1st but not July 2nd
[xyz]	A character set. Matches any one of the enclosed characters.	gr[ae]y adapt[oe]r	matches gray or grey matches adaptor or adapter
[a-z]	A range of characters. Matches any character in the specified ranges.	[1-9] [a-z]	matches any single digit except 0 matches any lowercase alphabetic character in the range a through z
[^a-z]	A negative range of characters. Matches any character not in the specified range.	[^a-f] [^1-5] 1[^02]	matches any character **not** in the range a through f matches 7 but not 4 matches 11 or 13 but not 10 or 12
\b	Matches a word boundary: the position between a word and a space	er\b	matches the er in never but not the er in every
\B	Matches a non-word boundary	er\B	matches the er in every but not the er in never
\d	Matches a digit character	July **\d**((st)|(nd)|(rd)|(th))	matches July 1st, July 2nd, July 3rd, July 4th, etc. but not July First or July Fourth
\D	Matches a non-digit character	July **\D**	Matches July Ninth but not July 9
\s	Matches any white space character, including space, tab, etc.	250**\s**mL	Matches 250 mL but not 250mL (Note: using 250\s*mL will allow for zero spaces OR more than one space between 250 and mL)

Example with Explanation:

Example:

`250(\.0+)?\s*mL`

Explanation:

250 matches exactly 250
() are used to group a sub expression
? means 0 or 1 occurrences of the previous character or subexpression
so, in our example, 0 or 1 occurrences of \.0+
. normally matches any single character \ is used to escape it, so \. literally matches a single period
+ means 1 or more occurrences of the previous character or subexpression
so, in our example 0+ means 1 or more 0s
so, (\.0+) means a period followed by 1 or more 0s
so, (\.0+)? means optionally a (period followed by 1 or more 0s
\s means exactly 1 whitespace character (space or tab)
* means 0 more occurrences of the previous character or subexpression
so, \s* means 0 or more whitespace characters
mL matches exactly mL

✓ So this expression will match:

```
250mL
250     mL
    250mL
  250          mL
250.0mL
250.0000000mL
    250.000000000      mL
```

✘ It will NOT match:

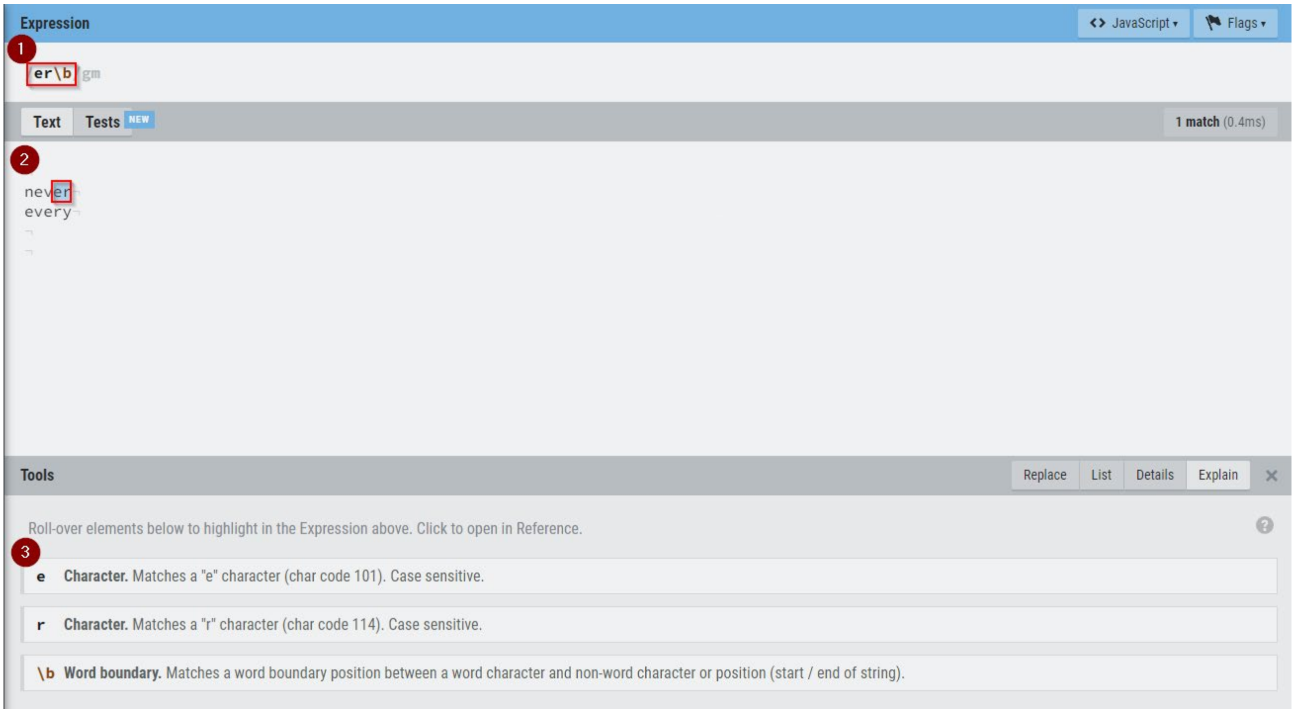
```
250ML
250Ml
250.0000000001    mL
251 mL
```

Checking Regex:

To make sure that there are no mistakes in your Regex syntax, you can check your expressions at the following website (note: for complex ones, it's best to also check in Brightspace by doing a preview):

https://regexr.com

1) Enter the Regex in the Expression field
2) Enter the target text in the Text field; if the Regex is correct, the target text should be highlighted in blue
3) (optional) See explanations of highlighted text and Regex



```
er\b gm
```

```
never
every
```

Roll-over elements below to highlight in the Expression above. Click to open in Reference.

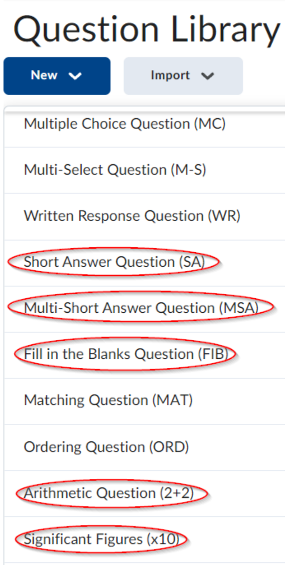
e **Character.** Matches a "e" character (char code 101). Case sensitive.

r **Character.** Matches a "r" character (char code 114). Case sensitive.

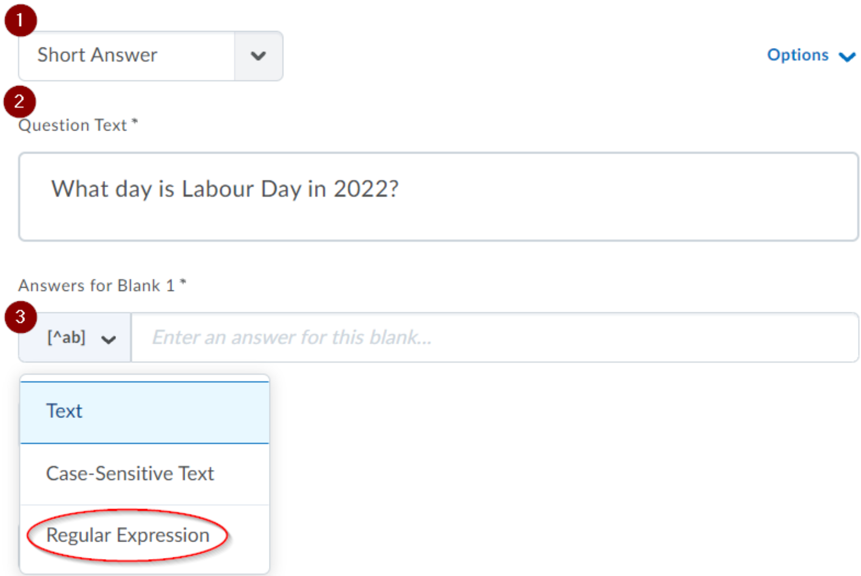
\b **Word boundary.** Matches a word boundary position between a word character and non-word character or position (start / end of string).

Setting Up Regex Questions in Brightspace:

1) In Assessments → Quizzes → Question Library
   - Select New → question type (support types: SA, MSA, FIB, 2+2, x10)


Question Library
New
Import
Multiple Choice Question (MC)
Multi-Select Question (M-S)
Written Response Question (WR)
Short Answer Question (SA)
Multi-Short Answer Question (MSA)
Fill in the Blanks Question (FIB)
Matching Question (MAT)
Ordering Question (ORD)
Arithmetic Question (2+2)
Significant Figures (x10)

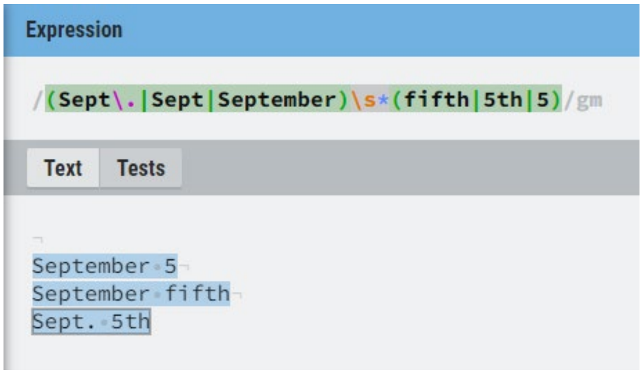
2) Follow these steps:



What day is Labour Day in 2022?

1. Confirm you have the correct question type
2. Enter the Question Text
3. **Important!!:** Set the answer field to **Regular Expression** using the drop-down settings on the left (not setting to Regex from the default setting of Text will mean the Regex won't work)

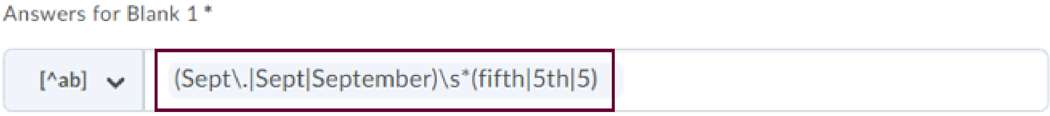
3) Recommended: test at regexr.com to see if your expression will work for expected answers:
   a. if it works, it will highlight the text in blue (like the example below)
   b. if the text doesn't highlight, check your expression syntax



```
/(Sept\.|Sept|September)\s*(fifth|5th|5)/gm
```

```
September 5
September fifth
Sept. 5th
```

4) Enter your Regex into the answer field:

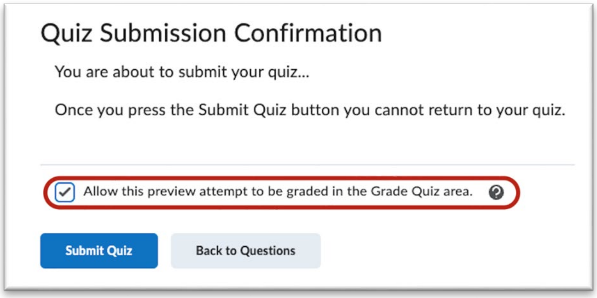


```
(Sept\.|Sept|September)\s*(fifth|5th|5)
```

Check Auto-grading in Brightspace for Regex Questions:

Once the questions are imported into a Quiz, do a preview of the quiz to make sure that anticipated answers are being graded as correct. This will allow you to check the Regex coding for answer keys by previewing your quiz and then grading the preview attempt.

1) When you reach the **Quiz Submission Confirmation** page when previewing a quiz, you will have the option to **Allow this preview attempt to be graded in the Grade Quiz area**. Check to box to allow for grading and submit the quiz and then click **Done** on the last page of the preview.



Quiz Submission Confirmation

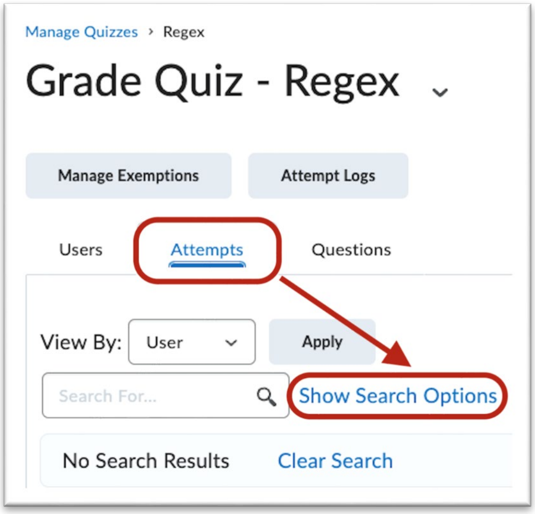
You are about to submit your quiz...

Once you press the Submit Quiz button you cannot return to your quiz.

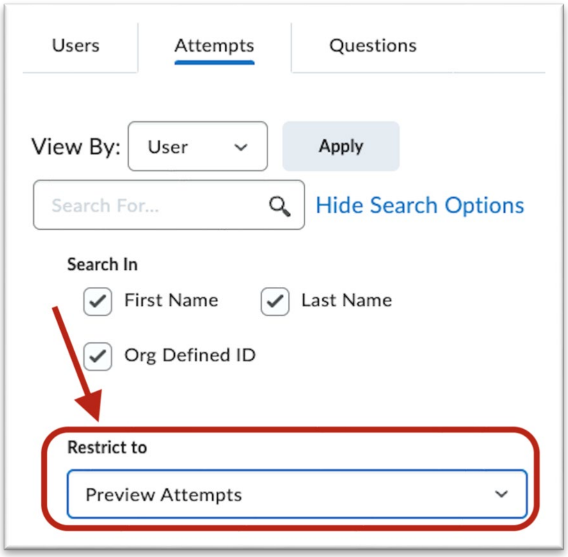
☑ Allow this preview attempt to be graded in the Grade Quiz area.

2) Go to **Manage Quizzes** and on the drop-down options next to the name of the quiz, select **Grade**.

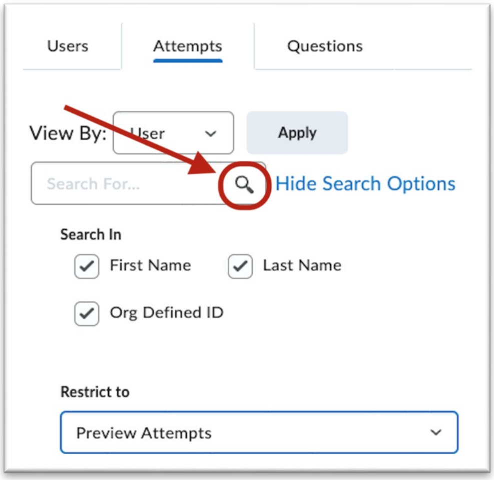
3) You will land on the **Users** tab. Click on the **Attempts** tab and click **Show Search Options**.



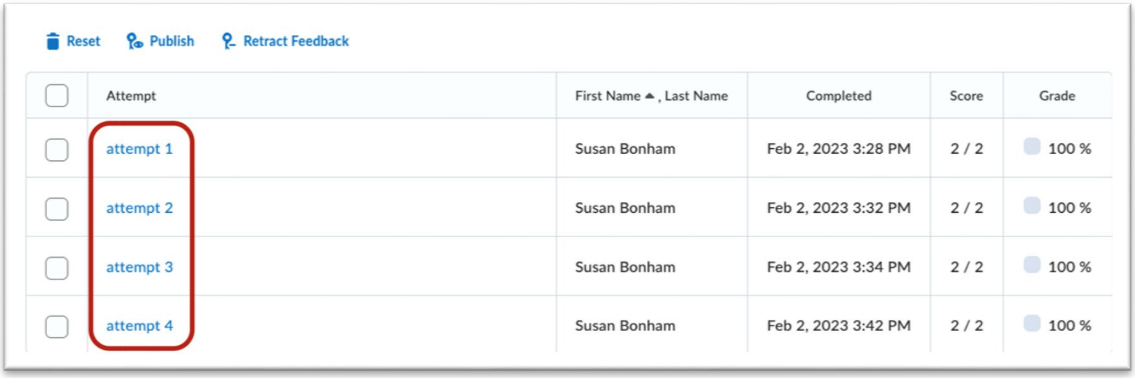
4) In the **Restrict to** drop-down, select **Preview Attempts**.



5) The click the magnifying glass icon in the search field.

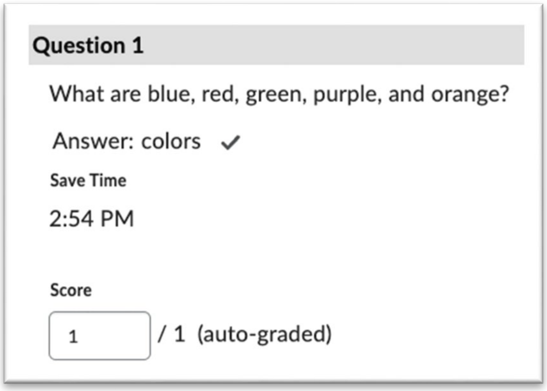


6) Click on attempt link(s) to check auto-grading.



□	Attempt	First Name ▲ , Last Name	Completed	Score	Grade
□	attempt 1	Susan Bonham	Feb 2, 2023 3:28 PM	2 / 2	□ 100 %
□	attempt 2	Susan Bonham	Feb 2, 2023 3:32 PM	2 / 2	□ 100 %
□	attempt 3	Susan Bonham	Feb 2, 2023 3:34 PM	2 / 2	□ 100 %
□	attempt 4	Susan Bonham	Feb 2, 2023 3:42 PM	2 / 2	□ 100 %

7) For this question, the Regex was coded to allow any of “colour/color/s” as an acceptable answer. We can confirm that the sample answer has been correctly auto-graded.



Question 1

What are blue, red, green, purple, and orange?

Answer: colors ✓

Save Time

2:54 PM

Score

1 / 1 (auto-graded)