

Objective style questions (open questions)

1. *The Text Question* – requires text as an answer.

▶ During the 17th century in Europe two mathematicians used and developed work of earlier scientists. Now they are recognized as founders of calculus. Who were they?

Simple text response.

1. Name *one* of the founders of calculus.

Simple text response, multiple text fill-in fields.

2. The founders of calculus are Isaac
and Gottfried

More complex text response, multiline text fill-in field.

3. Name both founders of calculus.



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Simple text response

```
\item Name \emph{one} of the founders of calculus.\\
\RespBoxTxt[\rectW{2in}]{0}{0}[sqTQfirst] % <-- unique
% identifier (because of solution)
{4}{Isaac Newton}{Newton}{Gottfried Leibniz}{Leibniz}
\CorrAnsButton{Isaac Newton or Gottfried Leibniz}
\kern1bp\sqTallyBox\kern1bp\sqClearButton
\begin{solution}
    Here should be a solution to the first text question.
\end{solution}
```

Simple text response, multiple text fill-in fields

```
\item The founders of calculus are Isaac
\begin{mathGrp}
\RespBoxTxt[\rectW{.5in}]{0}{0}{1}{Newton}
and Gottfried \RespBoxTxt[\rectW{.5in}\Q{1}]{0}{0}
[sqTQsecond] % <--- unique identifier (because of solution)
{1}{Leibniz}
% in mathGrp environment is recomended to put the unique
% identifier to the last open question
\end{mathGrp}\CorrAnsButtonGrp{Newton,Leibniz}
\kern1bp\sqTallyBox\kern1bp\sqClearButton
\begin{solution} Here should be ...
\end{solution}
```


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More complex text response, multiline text fill-in field

```

\item Name both founders of calculus.\par\kern1pt
\RespBoxTxtPC%
% 1. Optional = modify the appearance of the text field
[\Ff{\FfMultiline} % <-- multiline text field
\rectW{.9\linewidth}\rectH{2\baselineskip}]%
% 2. Required parametr = filtering method, 3 is recommended
{3}
% 3. Optional a named destination to the solution
% if * then an automatic naming scheme is used instead.
*
% 4. Required = number of acceptable alternative answers
{4}
% immediately after we list the alternative answers
% in the form [<num>]{<word>},
% num = credits, word = alternative
[0.5]{(\word{Isaac}|\word{I.})} % ans. (1)
[0.5]{(\word{Gottfried}|\word{G.{0,1}})} % ans. (2)
[1.0]{\word{Newton}} % ans. (3)
[1.0]{\word{Leibniz}} % ans. (4)
\begin{flushright}
\CorrAnsButton{Shift-click for a complete answer}
\kern1bp\sqTallyBox\kern1bp\sqClearButton\end{flushright}

```


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Solution:

```

\begin{solution}
At that time two major mathematicians emerged:
\begin{center}
\noindent \begin{minipage}{.45\textwidth}
  \centering
  \includegraphics[height=.4\textheight]{obr/Leibniz.pdf}\\
  Gottfried Wilhelm von Leibniz\\ (1646--1716)\\ in Hannover
\end{minipage}%
\begin{minipage}{.45\textwidth}
  \centering
  \includegraphics[height=.4\textheight]{obr/Newton.pdf}\\
  Isaac Newton\\ (1642--1727)\\ in Cambridge
\end{minipage}
\end{center}
Each man invented a version of the differential ...
\begin{flushright}\scriptsize Text adapted from
\href{http://...html}{Science Encyclopedia},\\
pictures from Wikipedia (\href{http://...org}{Leibniz},
\href{http://...org}{Newton}).\end{flushright}
\end{solution}

```



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2. *The Mathematical Question* – requires mathematical expression as an answer.

One math fill-in field.

1. (2^{pts}) Find the solution of the differential equation

$$(2xy + 4x^3y) dx + (x^2 + x^4) dy = 0.$$

c =

Multiple math fill-in fields.

2. (3^{pts}) Calculate the Wronskian of the differential equation

$$y'' - 3y' + 2y = e^x,$$

when e^{2x} and e^x form a fundamental system of solutions of the associated homogeneous equation.

$$W(x) = \begin{vmatrix} & \\ & \end{vmatrix} =$$



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One math fill-in field

```
\item Find ...

$$\frac{d}{dx}(x^2y+x^4y)(xy)^4 \cdot 0.001 \cdot [0,1]x[0,1]$$

\CorrAnsButton{x^2*y+x^4*y}
```

Multiple math fill-in fields

```
\item Calculate ...
\begin{mathGrp}

$$W(x) = \begin{matrix} \exp(2x) & & \\ \exp(x) & & \\ 2\exp(2x) & & \\ \exp(x) & & \end{matrix}$$

\end{mathGrp}
\CorrAnsButtonGrp{\exp(2*x),\exp(x),2*\exp(2*x),
\exp(x),-\exp(3*x)}
\begin{solution} Here should be a solution
to a math question "multiple math fill-in fields".
\end{solution}
```


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Solutions to Quizzes

Solution to Quiz: Here should be a solution to the first text question.



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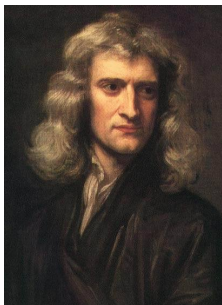
Solution to Quiz: Here should be a solution to the second text question.



Solution to Quiz: At that time two major mathematicians emerged:



Gottfried Wilhelm von Leibniz
(1646–1716)
in Hannover



Isaac Newton
(1642–1727)
in Cambridge

Each man invented a version of the differential and integral calculus, Newton first in creation but Leibniz first in print.

Text adapted from [Science Encyclopedia](#),
pictures from Wikipedia ([Leibniz](#), [Newton](#)).



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Solution to Quiz: Here should be a solution to a math question "multiple math fill-in fields".

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