Trilocks, Getty Images

STACK online assessment for mathematics and science

"Last year our students made over a million attempts at STACK questions. STACK gives our distance learning students an unprecedented opportunity to practice mathematics with immediate feedback and guidance."

Dr Tim Lowe, The Open University, UK

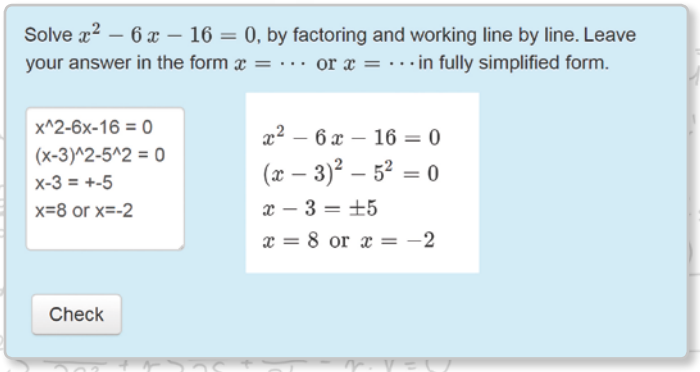
WINNER
Collaborative Award for Teaching Excellence
2017

"I put computer algebra and mathematics at the heart of STACK to give students the best possible feedback."

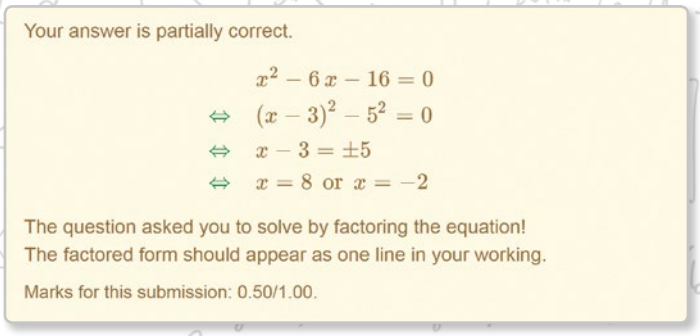
Professor Chris Sangwin, project founder

What is STACK?

STACK is an online assessment system for mathematics and science which accepts mathematical answers and provides sophisticated feedback.



Mathematical integrity, reliability and sophistication



Why choose STACK?

- Full worked solutions, based on random versions
- Multi-part questions guide students through complex processes
- Embed plots, graphics and videos
- Full support for scientific units
- Assess line by line reasoning
- Comprehensive authoring and testing interface
- All attempts stored for analysis

Built by mathematics educators for their teaching

Open source: no licence fees, no vendor lock-in

Key innovations in STACK

1. STACK separates “validity” feedback from “assessment” feedback. Students always get validity feedback, even in an exam, helping them understand what a question expects.
2. Feedback is based on computer algebra calculations, providing specific information on how to improve on the task.
3. Randomly generated questions, supported by unit testing, to ensure quality before students try them.
4. STACK community contributes user-support, innovations, materials and multi-languages.

Give an example of a function with a stationary point at $x = 2$ and which is continuous but not differentiable at $x = 0$.

$f(x) =$ x(x-4)

Your last answer was interpreted as follows:

$$x\ (x - 4)$$

The variables found in your answer were: $[x]$

Check

Questions are randomly generated

Answers are expressions

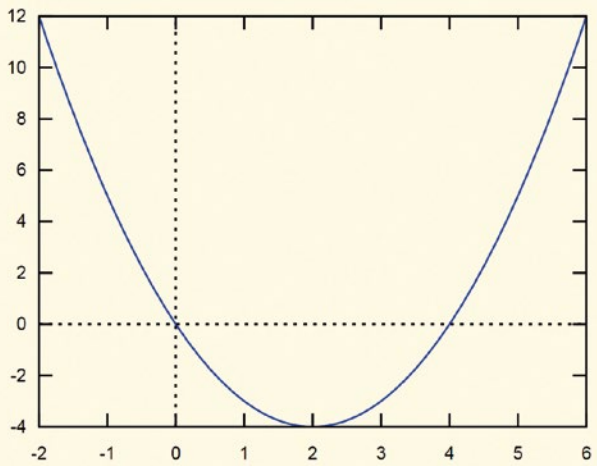
Multiple attempts help students succeed

Feedback helps students improve

Validation feedback helps students express themselves

Your answer is partially correct.

Your answer is differentiable at $x = 0$ but should not be! You were asked for a non-differentiable function at $x = 0$. Here is a sketch of your curve:



Consider using $|x|$ somewhere in your answer.

Marks for this submission: 2.00/4.00.

Open materials, user consortiums to share materials, and commercial partners

Flexible integration

Native support:

Embed:

LTI support for campus systems

Native API for developers and commercial partners

STACK works seamlessly with other question types in quizzes, reducing the number of separate assessment systems.

- Over 650 Moodle sites use STACK
- Large ILIAS community
- Translated into many languages, e.g. Finnish, German, French, Spanish, Portuguese, Hebrew and Japanese.

ABACUS materials bank:
https://abacus.aalto.fi/

THE UNIVERSITY of EDINBURGH

Aalto University

The Open University

Loughborough University

STACK community

Development team

Continuously developed and used since 2004

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