

Purposes and Characteristics of Good Situations
Compiled from bulleted comments submitted by the Situations Group
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Situations will contribute to:

1) Identification of mathematical knowledge for teaching.

The situations and the process of creating situations help us to identify important mathematical knowledge for teaching at the secondary level (MKTS). This is the knowledge that is helpful when teaching students using a good secondary curriculum rather than a required list of things teachers ought to know. The situations help to make implicit mathematical ideas more explicit and uncover the complexity in ideas that are seemingly simple. The situations illustrate a deeper, connected knowledge of mathematics that should be the goal of mathematics teachers. ([BULLETS1](#))

2) Mathematics teacher preparation and enhancement at the secondary level.

Situations can be used in the preparation and enhancement of mathematics teachers at the secondary level. They could be used in mathematics education courses or in mathematics courses for secondary teachers to stimulate mathematical discussions that are relevant to the secondary mathematics teaching and curricula. They could be used by groups of secondary mathematics teachers or mathematics educators to improve their teaching of mathematics. They help to elaborate the essential mathematical ideas that pervade the secondary curriculum. ([BULLETS2](#))

3) Mathematical discussions among those who teach mathematics to teachers.

Situations should stimulate mathematical discussions among those who teach mathematics to teachers, including mathematicians, mathematics educators, professional developers, and lead teachers. Situations will highlight the importance of a deep understanding of mathematics in order to teach mathematics and provide characteristics of a deep knowledge. They will draw attention to the contexts in which mathematics teachers can use a deep understanding of mathematics. They will identify the mathematical nature of work in mathematics education and help those who know mathematics well to see the complexity of seemingly simple ideas. Situations should challenge the perspective that mathematics is a rigid, certain discipline with little room for ambiguity. ([BULLETS3](#))

Characteristics of Good Situations:

1) Prompts come from authentic situations.

Prompts are written to represent a significant mathematical event in a mathematics class at the 6-12 level, a university class for teachers preparing to teach at the 6-12 level, or 6-12 mathematics faculty conversations. The actual situation can be altered to highlight the mathematics and stimulate the following discussion as long as it is faithful to stimulus in the class. The prompt should stimulate interesting mathematics and may arise from student and teacher insights as well as difficulties and questions. It is not necessary that the prompt be drawn from a frequent occurrence, but it should be perceived as a possible occurrence.

([BULLETS4](#))

2) Situations follow the prescribed format and review process.

Although it is a benefit to have a diverse set of situations, each situation needs to follow the prescribed format and is a product of an extensive review process. Situations will include a title, date of most recent edit, lead author(s), prompt, commentary (2 kinds?), foci, and references. There may be electronic links or notes that connect an idea in a situation to further elaboration. For example, a link may develop a proof, provide extensions, or show a dynamic representation. ([BULLETS5](#))

3) A good situation will stimulate discussion.

A situation should stimulate discussion about mathematics. It should present a mathematical idea from several perspectives. It should illustrate the complexity of ideas that appear to be straightforward, and provide succinct definition(s) where appropriate.

([BULLETS6](#))

4) A good situation includes mathematics that is accessible by a certified, secondary mathematics teacher.

A situation should have ties to advanced mathematics, but it should ground the ideas in high school mathematics. Although situations are not written for high school students, they are likely to focus on mathematics that may help high school students to learn more mathematics or use mathematics in their jobs or their lives. They contain mathematics that is useful for a teacher to know rather than mathematics that is expected of every mathematics teacher. ([BULLETS7](#))

5) Situations should be concise and centered around a specific topic, but they should highlight connections to other mathematical ideas.

A good situation has a focus, but can (should?) connect to other mathematical ideas. A situation should help highlight important ideas and connect ideas scattered throughout the curriculum. ([BULLETS8](#))

