

## Introduction: Online proofs

*Online proof project description.*

Student performance is generally quite poor on Ohio's end-of-course exams for Algebra 1, Geometry, Math 1, and Math 2, especially on items involving proof. In response to concerns that most of the proof items are too difficult, the following pages provide more accessible examples of computer-scorable proof items, mostly in Geometry.

The proofs are written to focus on the most important steps and reasons in the argument. Students complete the proofs by filling in blanks, pulling down menus, and selecting correct answers. In the Ximera environment, some answers are checked automatically when they are chosen. Others answers require pressing Enter, clicking the blue question mark, or clicking the blue "Check Work" button.

**Example 1.** *Some problems are multiple-choice:*

**Multiple Choice:**

- (a) *Don't pick me.*
- (b) *Not me either.*
- (c) *Pick me! ✓*
- (d) *Also an incorrect choice*

**Feedback(attempt):** Click on the choice that says "Pick me!"

**Example 2.** *Some problems are select-all that are correct:*

**Select All Correct Answers:**

- (a) *Don't pick me.*
- (b) *Pick me! ✓*
- (c) *Pick me too! ✓*
- (d) *I'm a correct choice too. ✓*

**Feedback(attempt):** Click on the choices "Pick me!" "Pick me too!" and "I'm a correct choice too."

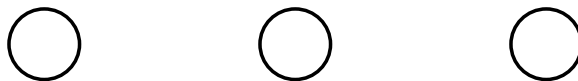
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Learning outcomes:  
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**Example 3.** Some problems use (purple haze/ purple rain/ pull-down menus ✓).

**Example 4.** Some problems are fill in the blank:  $3 \times 2 = \boxed{6}$

**Hint:**  $3 \times 2$  is the number of objects in 3 groups of 2 objects



**Hint:**  $3 \times 2 = 6$

For the convenience of teachers using an integrated curriculum, items are separated into two groups: those appropriate for Math 1, and those appropriate for Math 2, according to Ohio's assessments.

This is work in progress. Please send comments to Brad Findell, [findell.2@osu.edu](mailto:findell.2@osu.edu), Department of Mathematics, Ohio State University.