

# MyOpenMath / WAMAP / IMathAS Accessibility

IMathAS aims to comply with the Level AA Success Criteria set out by the W3C in the Web Content Accessibility Guidelines 2.1 (WCAG). These criteria meet current standards defined by Section 508 of the Rehabilitation Act and provide more specific guidelines for complying with those standards.

## Using the Accessibility Features

Accessibility options can be enabled by viewing the User Profile page. Depending on the particular system, this can be done by one of the following:

- Clicking the gear icon (labeled “User Settings”) next to your name in the upper right corner of the screen (MyOpenMath & WAMAP)
- Clicking the “More” icon (visually, three vertical dots) in the upper right of an assessment and selecting “User Preferences” (when accessed from an LMS using LTI)
- Clicking the “User Settings” link at the top of the screen (Lumen OHM)
- Clicking the “Change User Info” link on the home page (Default IMathAS)

On the profile page, you’ll be able to adjust your display preferences for math, graphs, drawing entry, text editor, contrast, and auto-preview. Here is a [video describing the options](#).

Students using screenreaders are recommended to use these settings:

- Math display: *MathJax 3 with screenreader support pre-enabled*, which provides the best accessibility available. It can integrate with most screenreaders. Depending on your previous interactions, you might still need to adjust the accessibility features of MathJax 3 by:
  - Right-clicking a math equation (or tab to select it and press Space) to active the menu
  - Navigate to Accessibility, make sure Activate is checked.
  - Notes:

- If you want to use your screen reader's built-in MathML reader instead of MathJax's built-in generator, navigate to Accessibility, make sure Activate is un-checked, and make sure Include Hidden MathML is checked.
- If using MathJax 2 you may need to enable the accessibility features of MathJax 2 by:
  - Right-clicking a math equation (or tab to select it and press Space) to active the menu
  - Either:
    - Navigate to Accessibility, then select Assistive MathML, if you want to use your screen reader's built-in MathML reader
    - Navigate to Accessibility, then Explorer, then select Activate, to use MathJax's math reader.
    - You will need to experiment to determine which works best with your screen reader.
- Graph display: *text alternatives*, which will replace graphs with tables or other alternative.
- Drawing entry: *keyboard and text based alternative*, which will allow answering of most graphing questions by selecting equation type and using keyboard entry to enter coordinates.
- Text editor: *plain text entry*, for a simpler text-entry experience, or *Rich text editor* for more markup options.
- Math entry: *calculator-style text entry*, for a simpler expression entry experience.
- Live Preview: *only show a preview when I click the Preview button*. While the default will work fine, this reduces the risk of unnecessary update alerts.

Students who need to be able to zoom the screen are recommended to use these settings:

- Math display: *MathJax*, which will look crisp and clear even when zoomed. It also has built-in capability for showing a zoomed equation when clicked.
- Graph display: *SVG*, which will look crisp and clear even when zoomed.

Students who have trouble with fine control of the mouse:

- Drawing entry: *keyboard and text based alternative*, which will allow answering of most graphing questions by selecting equation type and using keyboard entry to enter coordinates, rather than requiring careful entry with a mouse or touch device.

Students with seizures or distraction issues:

- Live Preview: *only show a preview when I click the Preview button*. This will disable the default automatic display of a preview while you're typing an equation, which can be distracting. The updated area is very small, so unlikely to be a seizure risk, but this option is available if there is concern.

Students needing especially high contrast:

- Course styling and contrast: *High contrast dark on light*. While all themes are designed to meet the AA requirements, this will override the instructor-chosen theme with an especially high contrast alternative.

## Details of Accessibility Status

The following tables describe the current status of the IMathAS platform against WCAG 2.1 Level A and AA Success Criteria. Note that status may be different on student-facing pages than instructor-facing pages.

Keep in mind also that as a user-content site, these tables only address the status of the platform itself. User-created content, including questions, text materials, and videos may contain elements that do not meet the standards.

### Principle 1: Perceivable

Success Criterion	Student Status	Instructor Status	Supporting Features and Remarks
1.1.1: Non-text Content (Level A)	Good	Needs improvement	On instructor pages, not all inputs are properly labeled.
1.2.1: Audio-only and Video-only (Prerecorded) (Level A)	N/A	N/A	The platform has no audio-only or video-only content.
1.2.2: Captions (Prerecorded) (Level A)	N/A	N/A	The platform has no audio or video content.

1.2.3: Audio Description or Full Text Alternative (Level A)	N/A	N/A	The platform has no audio or video content.
1.2.4: Captions (Live) (Level AA)	N/A	N/A	The platform has no live audio
1.2.5: Audio Description (Level AA)	N/A	N/A	The platform has no prerecorded audio
1.3.1: Info and Relationships (Level A)	Good	Good	Information, structure, and relationships conveyed through presentation can be programmatically determined or are available in text.
1.3.2: Meaningful Sequence (Level A)	Good	Good	The code order of elements is logical and intuitive.
1.3.3: Sensory Characteristics (Level A)	Good	Good	Instructions do not rely upon visual characteristics or sounds.
1.3.4: Orientation (Level AA)	Good	Good	The site can be used in any orientation
1.3.5: Identify Input Purpose (Level AA)	Good	Needs Improvement	Not all fields in teacher forms that could use an autocomplete attribute currently have one. Updating these fields is on the development roadmap.

1.4.1: Use of Color (Level A)	Good	Needs Improvement	<p>Color is not used as the only visual means of conveying information, indicating an action, prompting a response, or distinguishing a visual element.</p> <p>Some instructor pages use color as the only indicator of status.</p>
1.4.2: Audio Control (Level A)	N/A	N/A	There is no audio that automatically plays.
1.4.3: Contrast (Minimum) (Level AA)	Good	Needs Improvement	<p>The visual presentation of text and images of text has a contrast ratio of at least 4.5:1, except when allowed.</p> <p>Some instructor pages use greyed text of insufficient contrast.</p>
1.4.4: Resize text (Level AA)	Good	Good	Zoom is generally well supported, including on graphs.
1.4.5: Images of Text (Level AA)	Good	Good	Images of text are not used. Math equations can be rendered as images with alt text, but only on user request.
1.4.10: Reflow (Level AA)	Good	Good	Two dimensional scrolling is not required, except for certain tabular data where the layout is required for meaning.
1.4.11: Non-text Contrast (Level AA)	Good	Good	
1.4.12: Text Spacing (Level AA)	Good	Good	

1.4.13: Content on Hover or Focus (Level AA)

Good

Good

## Principle 2: Operable

Success Criterion	Student Status	Instructor Status	Supporting Features and Remarks
2.1.1: Keyboard (Level A)	Good	Needs improvement	All functionality of the content is operable through a keyboard interface without requiring specific timings for individual keystrokes.  Not all instructor pages are operable by keyboard.
2.1.2: No Keyboard Trap (Level A)	Good	Good	There are no keyboard traps.
2.1.4: Character Key Shortcuts (Level A)	N/A	N/A	No such keyboard shortcuts are used
2.2.1: Timing Adjustable (Level A)	Good	Good	The only timing events are time limits for assessments, which are essential exceptions. Instructors can give students extended time on assessments
2.2.2: Pause, Stop, Hide (Level A)	Good	Good	The auto-updating preview of entered algebraic answers can be stopped. Countdown timers can be hidden, except where essential.

2.3.1: Three Flashes or Below Threshold (Level A)	Good	Good	The auto-updating preview of entered algebraic answers flashes, but is a small area
2.4.1: Bypass Blocks (Level A)	Good	Good	ARIA landmarks are provided.
2.4.2: Page Titles (Level A)	Good	Good	Pages have meaningful titles.
2.4.3: Focus Order (Level A)	Good	Good	Focus order is logical.
2.4.4: Link Purpose (In Context) (Level A)	Good	Needs Improvement	<p>The purpose of each link can be determined from the link text alone or from the link text together with its programmatically determined link context on all student-facing pages.</p> <p>On instructor pages, some link's purpose is only evident through title text or aria-label text</p>
2.4.5: Multiple Ways (Level AA)	Good	Needs Improvement	Students can typically find content within a course also through the Calendar, but not all content unless set up by the instructor. A course map provides an overview and access to items.
2.4.6: Headings and Labels (Level AA)	Good	Needs Improvement	Some instructor pages have unclear or missing labels.
2.4.7: Focus Visible (Level AA)	Good	Good	Indication of focus is present



2.5.1: Pointer Gestures (Level A)	N/A	N/A	No functionality requires multipoint or path-based gestures.
2.5.2: Pointer Cancellation (Level A)	Good	Good	All functions triggered by down-events can be aborted or undone.
2.5.3: Label in Name (Level A)	Good	Good	
2.5.4: Motion Actuation (Level A)	N/A	N/A	

### Principle 3: Understandable

Success Criterion	Student Status	Instructor Status	Supporting Features and Remarks
3.1.1: Language of Page (Level A)	Good	Good	Language is reported
3.1.2: Language of Parts (Level AA)	Good	Needs Improvement	<p>Student-facing pages can use i18n so all content parts are in the main page language.</p> <p>Many instructor-facing pages are only in English, and the language is not marked.</p>
3.2.1: On Focus (Level A)	Good	Good	When any component receives focus, it does not initiate a change of context.

3.2.2: On Input (Level A)	Good	Good	Changing the setting of any user interface component does not automatically cause a change of context except where indicated.
3.2.3: Consistent Navigation (Level AA)	Good	Good	Navigational links remain constant
3.2.4: Consistent Identification (Level AA)	Good	Good	Components that have the same functionality are identified consistently.
3.3.1: Error Identification (Level A)	Good	Needs Improvement	Error messages are given for form errors.
3.3.2: Labels or Instructions (Level A)	Good	Needs Improvement	Some instructor pages are missing labels.
3.3.3: Error Suggestion (Level AA)	Good	Needs Improvement	Input errors in assignments are detected with an appropriate suggestion for the context. Other forms provide suggestions when appropriate.
3.3.4: Error Prevention (Legal, Financial, Data) (Level AA)	N/A	N/A	No financial, legal transactions are supported.

#### Principle 4: Robust

Success Criterion	Student Status	Instructor Status	Supporting Features and Remarks
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4.1.1: Parsing (Level A)	Good	Good	Code is generally valid, although minor parsing errors are present.
4.1.2: Name, Role, Value (Level A)	Good	Good	Standard HTML controls are used.

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