

Voluntary Product Accessibility Template® (VPAT®)

Version 2.5 (INT) — WCAG 2.1, Revised Section 508, and EN 301 549

Name of Product/Version: TangMath (tangmath.com) Web Application — October 2026 release (includes Phase 1 accessibility remediation)

Report Date: October 7, 2026 (Version 2.0; supersedes the June 22, 2026 report)

Product Description: TangMath is a web-based mathematics education platform serving teachers, administrators, and students. It provides interactive lessons, math games, video libraries, assignment and classroom management tools, printable/downloadable workbooks (PDF), and reporting. The application is a server-rendered web application accessed through a standard web browser.

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Notes: This report documents an internal accessibility evaluation against WCAG 2.1 Level A and AA. It is paired with the TangMath WCAG 2.1 AA Conformance Report and the TangMath Accessibility Statement and Remediation Roadmap, all available at <https://tangmath.com/accessibility>. Generated downloadable PDF workbooks are addressed separately as non-web documents and are an area of active remediation.

Basis of this report: This is a good-faith vendor self-assessment. Version 2.0 reflects the completion of Phase 1 of our remediation roadmap (keyboard operation of navigation and core controls, skip link and landmarks, status announcements, and visible focus indicators). The Phase 1 changes were verified with automated testing and keyboard-only testing as described below. Screen-reader testing (NVDA, JAWS, VoiceOver) has **not yet** been performed and is scheduled in the roadmap; individual ratings may change once it is complete.

Evaluation Methods Used:

- Manual source-code and rendered-markup review of the application's templates, CSS, and client-side JavaScript (June 2026).
- Automated testing with axe-core 4.10 (WCAG 2.0/2.1 A and AA rule sets) in a current Chromium-based browser across 15 representative public page types — including the home page, games catalog, game player pages, puzzles, videos, digital tools, curriculum, membership, contact, login, and accessibility pages — plus a sample embedded game (October 2026).

- Keyboard-only testing of those pages at desktop and mobile widths: tab order, skip link, opening and navigating the main and sub-menus, focus visibility, and starting and playing a sample game (October 2026).
- Verification that dynamic notifications are written to ARIA live regions (October 2026).

Signed-in areas (teacher dashboard, class and student management, documents) share the same layout, navigation, and notification components verified above but were evaluated by code review only in this version.

Applicable Standards/Guidelines

Standard/Guideline	Included In Report
Web Content Accessibility Guidelines 2.1	Level A — Yes; Level AA — Yes; Level AAA — No (not evaluated)
Revised Section 508 standards (2017, as amended)	Yes
EN 301 549 Accessibility requirements (V3.2.1)	Yes

Terms

The terms used in the Conformance Level information are defined as follows:

- **Supports:** The functionality of the product has at least one method that meets the criterion without known defects or meets with equivalent facilitation.
- **Partially Supports:** Some functionality of the product does not meet the criterion.
- **Does Not Support:** The majority of product functionality does not meet the criterion.
- **Not Applicable:** The criterion is not relevant to the product.
- **Not Evaluated:** The product has not been evaluated against the criterion. This can only be used in Level AAA criteria.

WCAG 2.1 Report

Tables 1 and 2 document conformance with WCAG 2.1 Level A and Level AA. Level AAA criteria were not evaluated and are omitted.

Table 1: Success Criteria, Level A

Criteria	Conformance Level	Remarks and Explanations
1.1.1 Non-text Content (Level A)	Partially Supports	Many informative images include meaningful <code>alt</code> text. Automated testing found images without text alternatives on some pages (for example, currency images in digital tools and an avatar image on the membership page), and status icons in signed-in administrative and workbook tools were identified in code review. Remediation is scheduled in Phase 2.
1.2.1 Audio-only and Video-only (Prerecorded) (Level A)	Partially Supports	Instructional videos are delivered through the Vimeo player, which supports text tracks. Short game sound effects (e.g., correct/incorrect sounds) convey information audibly; visual feedback usually accompanies them, but a documented text equivalent is not yet provided.
1.2.2 Captions (Prerecorded) (Level A)	Partially Supports	Prerecorded instructional video is hosted on Vimeo, which supports closed captions. Caption availability and accuracy are not yet verified for the full catalog; verification is scheduled in the roadmap.
1.2.3 Audio Description or Media Alternative (Prerecorded) (Level A)	Partially Supports	Some instructional videos present on-screen mathematical content narrated by the instructor; a media alternative or audio description is not consistently provided. Under review.
1.3.1 Info and Relationships (Level A)	Partially Supports	Pages now use semantic landmarks (<code>header</code> , <code>nav</code> , <code>main</code> , <code>footer</code>) from the shared layout, verified on all tested pages of the main site. Headings and lists convey structure. Remaining gaps: some pages have no top-level heading, some data tables omit <code>scope</code> / <code>caption</code> , and some form controls (for example, the grade/filter selects on the puzzles page) are not programmatically labeled.
1.3.2 Meaningful Sequence (Level A)	Supports	Content is delivered in a logical DOM order that matches the visual reading order.
1.3.3 Sensory Characteristics (Level A)	Partially Supports	Most instructions are text-based. Some game interactions rely on color/position state changes without a non-sensory cue. Remediation is scheduled in Phase 3.

Criteria	Conformance Level	Remarks and Explanations
1.4.1 Use of Color (Level A)	Partially Supports	In some game and feedback interactions, color is the only visual means of conveying a result. Text/iconographic cues are scheduled in Phase 3.
1.4.2 Audio Control (Level A)	Partially Supports	Game sound effects are short and triggered by user interaction. The tested game provides a sound on/off control; consistent exposure of audio controls across all games is being reviewed in Phase 3.
2.1.1 Keyboard (Level A)	Partially Supports	The site navigation, main and sub-menus (including the mobile menu), and core page controls are keyboard-operable: custom controls now have button roles, are in the tab order, and respond to Enter and Space (verified by keyboard-only testing). Within games, start screens and buttons are keyboard-operable, but gameplay interactions on game boards (for example, selecting tiles or split points) still require a pointer or touch. Keyboard operation of game boards is the focus of Phase 3.
2.1.2 No Keyboard Trap (Level A)	Partially Supports	No keyboard traps were found during keyboard-only testing of the tested pages and sample game. Focus management in modal dialogs has not been fully verified with assistive technology.
2.1.4 Character Key Shortcuts (Level A)	Supports	No single-character key shortcuts are implemented that would conflict with this criterion.
2.2.1 Timing Adjustable (Level A)	Partially Supports	Sessions are not subject to short content timeouts in normal use. The tested game offers an untimed Practice mode alongside a Timed mode; timed modes impose time limits without an adjustment mechanism. Under review in Phase 3.
2.2.2 Pause, Stop, Hide (Level A)	Partially Supports	Loading spinners are brief. Some animated game backgrounds and elements may not offer a pause mechanism. Under review in Phase 3.
2.3.1 Three Flashes or Below Threshold (Level A)	Supports	No content is known to flash more than three times per second.

Criteria	Conformance Level	Remarks and Explanations
2.4.1 Bypass Blocks (Level A)	Supports	A "Skip to main content" link is the first focusable element on every tested page and moves focus to the main content region. Primary regions are marked with semantic landmarks. Verified by keyboard testing and automated checks.
2.4.2 Page Titled (Level A)	Partially Supports	Pages have descriptive titles (e.g., "Tang Math - Games", "Tang Math - Puzzles"). Individual game pages share a generic title ("Tang Math - Game") that does not identify the specific game. Scheduled in Phase 2.
2.4.3 Focus Order (Level A)	Partially Supports	Focus order on tested pages follows a logical sequence, and the menus place focus on their items in order. In the sample game, focus is not moved to the game board after the game starts. Addressed with game keyboard work in Phase 3.
2.4.4 Link Purpose (In Context) (Level A)	Partially Supports	Most links have descriptive text. Some icon-only or generic links rely on surrounding context. Under review.
2.5.1 Pointer Gestures (Level A)	Supports	Functionality does not require multipoint or path-based gestures.
2.5.2 Pointer Cancellation (Level A)	Partially Supports	Most actions trigger on a standard click event. A small number of custom handlers act on down-events; under review.
2.5.3 Label in Name (Level A)	Partially Supports	Most controls have visible text matching their accessible name. Some icon and custom controls do not consistently include the visible label in the accessible name. Under review.
2.5.4 Motion Actuation (Level A)	Not Applicable	No functionality is operated by device motion or user motion.
3.1.1 Language of Page (Level A)	Supports	Pages, including the embedded games, declare <code>lang="en"</code> on the root <code>html</code> element.
3.2.1 On Focus (Level A)	Supports	No change of context occurs solely on receiving focus.

Criteria	Conformance Level	Remarks and Explanations
3.2.2 On Input (Level A)	Partially Supports	Most inputs do not trigger an unexpected change of context. Some select/checkbox controls trigger navigation or submission on change; these are being reviewed for advance notice.
3.3.1 Error Identification (Level A)	Partially Supports	Form errors and notifications are now announced to assistive technology through live regions. Errors are not yet consistently associated with the specific field in error. Scheduled in Phase 2.
3.3.2 Labels or Instructions (Level A)	Partially Supports	Many forms provide visible labels and instructions; a portion of inputs lack programmatic label association. Scheduled in Phase 2.
4.1.1 Parsing (Level A)	Supports	Per W3C guidance, SC 4.1.1 Parsing is treated as satisfied for WCAG 2.1 — the criterion was deprecated and removed in WCAG 2.2 because modern browsers and assistive technologies reliably handle the markup conditions it addressed. No parsing-related barriers to assistive technology were identified.
4.1.2 Name, Role, Value (Level A)	Partially Supports	Native controls expose name/role/value correctly, and the custom navigation and menu controls now expose a button role, an accessible name, and their expanded/collapsed state (<code>aria-expanded</code> , <code>aria-controls</code>). Remaining gaps: the embedded game player frame has no accessible name, some filter selects have no accessible name, and game-board elements do not yet expose a role or name. Scheduled in Phases 2 and 3.

Table 2: Success Criteria, Level AA

Criteria	Conformance Level	Remarks and Explanations
1.2.4 Captions (Live) (Level AA)	Partially Supports	Live sessions are streamed through third-party players that support captions. Live captioning is not guaranteed for every event; under review.
1.2.5 Audio Description (Prerecorded) (Level AA)	Partially Supports	Audio description is not consistently provided for prerecorded instructional video where visual-only content is presented. Under review.

Criteria	Conformance Level	Remarks and Explanations
1.3.4 Orientation (Level AA)	Supports	Content is not locked to a single display orientation and reflows in both portrait and landscape.
1.3.5 Identify Input Purpose (Level AA)	Partially Supports	Common inputs (email, password) use appropriate input types. autoComplete attributes are not consistently applied to fields that collect user information. Scheduled in Phase 2.
1.4.3 Contrast (Minimum) (Level AA)	Partially Supports	Body text and primary controls meet the 4.5:1 ratio. Automated testing measured an accent text color used site-wide (for example, the header "Log In" label and card subtitles) at 3.23:1 on white and 2.96:1 on light-gray backgrounds, below the 4.5:1 requirement. Some in-game instructional text also falls below threshold. Remediation is scheduled in the roadmap.
1.4.4 Resize Text (Level AA)	Partially Supports	Text is generally defined with scalable units and the page is responsive. Some fixed-pixel layouts and inline styles may clip or overlap at 200% zoom; under review in Phase 4.
1.4.5 Images of Text (Level AA)	Partially Supports	Most text is live text. Some instructional/marketing graphics and generated worksheet imagery contain text as images. Under review.
1.4.10 Reflow (Level AA)	Partially Supports	The site is responsive and reflows for small viewports in most areas, including a mobile menu at 375 CSS px. Certain wide data tables and admin tools may require horizontal scrolling at 320 CSS px. Under review in Phase 4.
1.4.11 Non-text Contrast (Level AA)	Partially Supports	Focus indicators now use a 3px high-contrast outline. Some control borders (e.g., light-gray borders on near-white backgrounds) and game-state indicators have not been formally measured. Scheduled in Phase 4.
1.4.12 Text Spacing (Level AA)	Partially Supports	Most content tolerates user text-spacing overrides. Some fixed-height containers and inline styles may clip content; under review in Phase 4.
1.4.13 Content on Hover or Focus (Level AA)	Partially Supports	Tooltips exist in some components. Dismissibility/persistence of all hover/focus content has not been fully verified. Under review.

Criteria	Conformance Level	Remarks and Explanations
2.4.5 Multiple Ways (Level AA)	Supports	Multiple ways to locate content are provided, including the main navigation menu, footer link groups, and direct in-app navigation/links.
2.4.6 Headings and Labels (Level AA)	Partially Supports	Headings and labels are generally descriptive. Heading hierarchy varies by page (some pages lack a top-level heading), and some form labels are missing (see 3.3.2).
2.4.7 Focus Visible (Level AA)	Supports	A consistent 3px focus outline is applied to links, buttons, form fields, and custom controls; keyboard testing confirmed a visible indicator on every focusable element encountered on the tested pages. Page-level <code>outline: none</code> rules are overridden site-wide for keyboard focus; the only element intentionally shown without an outline is the main content region when the skip link moves focus to it, which is not an interactive control. Game buttons show a visible focus indicator.
3.1.2 Language of Parts (Level AA)	Supports	Content is predominantly English; no significant passages in other languages were identified that would require a <code>lang</code> change.
3.2.3 Consistent Navigation (Level AA)	Supports	The header and footer navigation are rendered from shared components, providing consistent placement and ordering across pages.
3.2.4 Consistent Identification (Level AA)	Partially Supports	Repeated components are largely consistent. Some icon-only controls lack consistent accessible names. Under review.
3.3.3 Error Suggestion (Level AA)	Partially Supports	Some validation messages suggest corrections (e.g., invalid credentials). Field-level suggestions are not consistently provided or programmatically associated. Scheduled in Phase 2.
3.3.4 Error Prevention (Legal, Financial, Data) (Level AA)	Partially Supports	Account and assignment actions include some confirmation steps. A systematic review of reversible/confirmable/checkable submissions for data-affecting actions is pending.

Criteria	Conformance Level	Remarks and Explanations
4.1.3 Status Messages (Level AA)	Supports	The shared layout provides polite (<code>role="status"</code>) and assertive (<code>role="alert"</code>) live regions, and on-screen notifications such as save confirmations and error messages are automatically written to them so they are announced without moving focus (verified). Games include a live feedback region for answer feedback.

Revised Section 508 Report

Chapter 3: Functional Performance Criteria (FPC)

Criteria	Conformance Level	Remarks and Explanations
302.1 Without Vision	Partially Supports	Navigation, menus, and core controls are keyboard-operable and expose roles and states; a skip link, landmarks, and status announcements are in place. Remaining barriers: game boards are not yet operable without a pointer, some images and controls lack text alternatives or names, and screen-reader testing has not yet been performed.
302.2 With Limited Vision	Partially Supports	Text scales, the layout is responsive, and focus indicators are clearly visible. An accent text color used site-wide does not meet minimum contrast (see WCAG 1.4.3).
302.3 Without Perception of Color	Partially Supports	Some game state and feedback are conveyed by color alone (see WCAG 1.4.1).
302.4 Without Hearing	Partially Supports	Game audio cues lack documented text equivalents; instructional video captioning is not fully verified.
302.5 With Limited Hearing	Partially Supports	Same as 302.4.
302.6 Without Speech	Supports	No functionality requires speech input.
302.7 With Limited Manipulation	Partially Supports	The site can be navigated and operated by keyboard; game-board play still requires a pointer or touch (see WCAG 2.1.1).

Criteria	Conformance Level	Remarks and Explanations
302.8 With Limited Reach and Strength	Partially Supports	Same as 302.7.
302.9 With Limited Language, Cognitive, and Learning Abilities	Partially Supports	Consistent navigation and largely text-based instructions help; inconsistent field-level error messaging and some color-only cues reduce support.

Chapter 4: Hardware

Not Applicable. TangMath is a web-based software application and does not include hardware.

Chapter 5: Software

Criteria	Conformance Level	Remarks and Explanations
501.1 Scope — Incorporation of WCAG	See WCAG 2.1 tables above	The product is web-based; conformance is documented via the WCAG 2.1 A/AA tables.
502 Interoperability with Assistive Technology	Partially Supports	Native controls and the custom navigation controls expose accessibility information; game-board elements and some frames and selects do not yet (see WCAG 4.1.2).
503 Applications	Partially Supports	User preferences from the platform/browser (zoom, text scaling) are generally respected; labeling gaps remain.
504 Authoring Tools	Partially Supports	Admin/authoring tools (workbook generation, content tools) share the improved navigation and notifications but retain gaps such as unlabeled status icons. Under remediation.

Chapter 6: Support Documentation and Services

Criteria	Conformance Level	Remarks and Explanations
602 Accessibility and Compatibility Features	Supports	This VPAT, a WCAG 2.1 AA Conformance Report, and a public Accessibility Statement and Remediation Roadmap document accessibility status and known limitations; all are published at https://tangmath.com/accessibility .
603 Support Services	Supports	Accessibility support requests are accepted at contact@tangmath.com and routed to the product team.

EN 301 549 Report

Chapter 9 (Web) conformance is established by the WCAG 2.1 A/AA tables above. The following additional clauses are summarized.

Criteria	Conformance Level	Remarks and Explanations
4.2 Functional performance (4.2.1–4.2.11)	Partially Supports	See Section 508 Chapter 3 functional performance criteria above; equivalent results apply.
5 Generic requirements	Partially Supports	Operation relies in part on closed functionality not applicable to a browser-based app; keyboard requirements are met for site navigation and core controls but not yet for game boards.
7 ICT with video capabilities	Partially Supports	Caption and audio-description support is available through the third-party video player but not fully verified across the catalog.
9 Web	Partially Supports	Establishes conformance per WCAG 2.1 A/AA — see tables above.
11 Software	Partially Supports	See Section 508 Chapter 5 above.
12 Documentation and support services	Supports	See Section 508 Chapter 6 above.

Legal Disclaimer

This Voluntary Product Accessibility Template is provided by TangMath for informational purposes to assist in evaluating the accessibility of the product. It reflects a good-faith internal assessment as of the report date and does not constitute a legally binding warranty or guarantee of conformance. The product is under active accessibility remediation; conformance levels are expected to improve as roadmap items are completed. For the most current information or to request assistance, contact contact@tangmath.com.

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