

Appendix A: Sample Questions for the Regents Examination in Algebra I

To aid in the implementation of the Next Generation Mathematics Learning Standards, a limited number of sample questions are being provided to help students, parents, and educators better understand the shifts of the NGMLS. The five questions below illustrate these shifts for Algebra I.

While educators from around the state have helped craft these sample questions, they have not undergone the same extensive review, vetting, and field testing that occurs with actual questions used on the State exams. The sample questions were designed to help educators think about content, NOT to show how operational exams look exactly or to provide information about how teachers should administer the test.

1. N-RN.3a

What is the sum of $3x\sqrt{7} + 2x\sqrt{7}$?

(1) $5x\sqrt{7}$

(2) $5x^2\sqrt{7}$

(3) $5x\sqrt{14}$

(4) $5x^2\sqrt{14}$

2. A-REI.10

What is an equation of the line that passes through the points (2,7) and (-1,3)?

(1) $y - 2 = \frac{3}{4}(x - 7)$

(2) $y - 2 = \frac{4}{3}(x - 7)$

(3) $y - 7 = \frac{3}{4}(x - 2)$

(4) $y - 7 = \frac{4}{3}(x - 2)$

3. N-RN.3a

Rationalize: $\frac{3}{2\sqrt{6}}$

4. A-REI.4b

Use the method of completing the square to determine the exact values of x for the equation $x^2 + 6x - 41 = 0$. Express your answer in simplest radical form.

5. A-REI.7a

Solve the following systems of equations algebraically for all values of x and y :

$$y = x^2 + 5x - 17$$

$$x - y = 5$$

Answer Key to Algebra I Sample Items

1. Choice 1

2. Choice 4

3. Rubric

[2] $\frac{3\sqrt{6}}{12}$ or an equivalent answer with no radical in the denominator, and correct work is shown.

[1] Appropriate work is shown, but one computational error is made.

or

[1] Appropriate work is shown, but one conceptual error is made.

or

[1] $\frac{3\sqrt{6}}{12}$, but no work is shown.

[0] A zero response does not contain enough relevant course-level work to receive any credit, does not satisfy the criteria for one or more credits, or is a correct response that was obtained by an obviously incorrect procedure.

4. Rubric

[4] $-3 \pm 5\sqrt{2}$, and correct work is shown.

[3] Appropriate work is shown, but one computational or simplification error is made.

or

[3] Appropriate work is shown, but only one solution is stated.

[2] Appropriate work is shown, but two or more computational or simplification errors are made.

or

[2] Appropriate work is shown to find $-3 \pm \sqrt{50}$, but no further correct work is shown.

or

[2] $-3 \pm 5\sqrt{2}$, but a method other than completing the square is used.

[1] $-3 \pm 5\sqrt{2}$, but no work is shown.

[0] A zero response does not contain enough relevant course-level work to receive any credit, does not satisfy the criteria for one or more credits, or is a response that was obtained by an obviously incorrect procedure.

5. Rubric

[4] $x = -6, y = -11$ and $x = 2, y = -3$ or $(-6, -11)$ and $(2, -3)$, and correct algebraic work is shown.

[3] Appropriate work is shown, but one computational or factoring error is made.

or

[3] Appropriate work is shown to find $x = -6$ and $x = 2$, but no further correct work is shown.

or

[3] Appropriate work is shown to find either $(-6, -11)$ or $(2, -3)$, but no further correct work is shown.

[2] Appropriate work is shown, but two or more computational or factoring errors are made.

or

[2] Appropriate work is shown to find $(x + 6)(x - 2) = 0$, but no further correct work is shown.

or

[2] A correct substitution is made into the quadratic formula, but no further correct work is shown.

or

[2] $x = -6, y = -11$ and $x = 2, y = -3$, but a method other than algebraic is used.

[1] A correct quadratic equation in standard form is written, but no further correct work is shown.

or

[1] $x = -6, y = -11$ and $x = 2, y = -3$ are stated, but no work is shown.

[0] A zero response does not contain enough relevant course-level work to receive any credit, does not satisfy the criteria for one or more credits, or is a response that was obtained by an obviously incorrect procedure.