



# Released Items

# End-of-Course Algebra II

## AzMERIT

Updated January, 2019

*Prepared by the Arizona Department of Education and the American Institutes for Research®*



## About the Released Items

The *AzMERIT Released Items* provides details about the items, student response types, correct responses, and related scoring considerations for released AzMERIT test items.

Within this guide, each item is presented with the following information:

- Cluster
- Content Standard
- Depth of Knowledge (DOK)
- Static presentation of the item
- Static presentation of student response field (when appropriate)
- Answer key, rubric or exemplar
- Applicable score point(s) for each item
- Option rationales (when applicable)

The items included in this guide are representative of the kinds of items that students can expect to experience when taking the computer-based test for AzMERIT End-of-Course (EOC) Algebra II.

## EOC Algebra II Released Items

Cluster	Content Standard	DOK
A2.F-BF.A	A2.F-BF.A.1	2

Albert buys a car that is valued at \$27,000. The value of the car depreciates at an average rate of 8% per year.

Create an equation to model the value,  $y$ , in dollars, of Albert's car after  $t$  years.

$$y = 27000(1 - 0.08)^t$$

The image shows a digital math input interface. At the top, a text box contains the equation  $y = 27000(1 - 0.08)^t$ . Below the text box is a calculator keypad with the following buttons:

- Navigation: left arrow, right arrow, undo, redo, clear (X).
- Row 1: 1, 2, 3,  $t$ , empty, empty, empty, empty, empty, empty.
- Row 2: 4, 5, 6, +, -,  $\cdot$ ,  $\div$ , empty, empty, empty, empty.
- Row 3: 7, 8, 9, <,  $\leq$ , =,  $\geq$ , >, empty, empty, empty, empty.
- Row 4: empty, 0, empty,  $\square^\square$ ,  $\square_\square$ , (), ||,  $\sqrt{\square}$ ,  $\sqrt[\square]{\square}$ ,  $\pi$ ,  $i$ .
- Row 5: ., -,  $\frac{\square}{\square}$ , sin, cos, tan, arcsin, arccos, arctan, empty, empty.

**(1 Point)** Student entered  $y = 27000(1 - 0.08)^t$  or any equivalent equation.

Cluster	Content Standard	DOK
A2.N-RN.A	A2.N-RN.A.2	2

An equation is given.

$$\sqrt[3]{(x^2)^4} = x^a$$

What is the value of  $a$ ?

$$\frac{8}{3}$$

← → ↶ ↷ ✕

1	2	3	+	-	•	÷				
4	5	6	<	≤	=	≥	>			
7	8	9	$\square^\square$	$\square_\square$	( )		$\sqrt{\square}$	$\sqrt[\square]{\square}$	$\pi$	$i$
	0		sin	cos	tan	arcsin	arccos	arctan		
.	-	$\frac{\square}{\square}$								

**(1 Point)** Student entered  $\frac{8}{3}$  or any equivalent value.

Cluster	Content Standard	DOK
A2.A-REI.C	A2.A-REI.C.7	1

The graph of a system of equations is shown.

Select all the solutions to the system of equations.

$(-5, 0)$

$(-4, -3)$

$(0, 0)$

$(0, 5)$

$(4, 3)$

$(5, 0)$

**(1 Point)**

**Option Rationales:**

**Choice A:** The student may have thought the x-intercept of the circle represented a solution to the system.

**Choice B: Key** - The student identified a solution to the system of equations.

**Choice C:** The student may have thought the y-intercept of the linear equation represented a solution.

**Choice D:** The student may have thought that the y-intercept of the circle represented a solution to the system.

**Choice E: Key** - The student identified a solution to the system of equations.

**Choice F:** The student may have thought that the y-intercept of the circle represented a solution to the system.

Cluster	Content Standard	DOK
A2.A-APR.B	A2.A-APR.B.2	1

A polynomial  $p(x)$  has a zero at  $-3$ .

What must be a factor of  $p(x)$ ?

$(x+3)$

← → ↶ ↷ ✕

1	2	3	$x$																	
4	5	6	+	-	•	÷														
7	8	9	<	≤	=	≥	>													
	0		$\square^\square$	$\square_\square$	( )		$\sqrt{\square}$	$\sqrt[\square]{\square}$	$\pi$	$i$										
.	-	$\frac{\square}{\square}$	sin	cos	tan	arcsin	arccos	arctan												

**(1 Point)** Student entered  $(x + 3)$  or any equivalent expression.

Cluster	Content Standard	DOK
A2.S-CP.A	A2.S-CP.A.3	1

A researcher analyzes two events, event  $A$  and event  $B$ . Based on his analysis, he finds the events to be independent.

Select all the probability statements that support the researcher's findings.

- $P(A | B) = P(A)$
- $P(A | B) = P(B)$
- $P(B | A) = P(A)$
- $P(B | A) = P(B)$
- $P(A | B) = P(B | A)$

**(1 Point)**

**Option Rationales:**

**Choice A: Key** - The student identified that if the events are independent, the probability of  $A$  given  $B$  would be equal to the probability of  $A$ .

**Choice B:** The student may have thought that if the two events are independent, the probability of  $A$  given  $B$  would be equal to the probability of  $B$  instead of  $A$ .

**Choice C:** The student may have thought that if the two events are independent, the probability of  $B$  given  $A$  would be equal to the probability of  $A$  instead of  $B$ .

**Choice D: Key** - The student identified that if the two events are independent, the probability of  $B$  given  $A$  would be equal to the probability of  $B$ .

**Choice E:** The student may have thought that if the two events are independent, the probability of  $A$  given  $B$  would be equal to the probability of  $B$  given  $A$ , which is only true when the probability of  $A$  is equal to the probability of  $B$ .