

Tennessee TCAP 2023
Algebra II

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Tennessee Comprehensive Assessment Program

TCAP

Algebra II Grade HS Item Release



*Standards implemented from 2023-24 Tennessee Academic Standards for Math

00. Which expression shows $(\sqrt[4]{3x})^3$ rewritten with rational exponents?

A. $(3x)^{\frac{4}{3}}$

B. $(3x)^{\frac{3}{4}}$

C. $27x^{\frac{1}{3}}$

D. $81x^{\frac{1}{4}}$

00. The formula for rotational kinetic energy is given.

$$K = \frac{1}{2}Iw^2$$

- K represents kinetic energy, in joules.
- I represents the moment of inertia, in kilograms•meters².
- w represents angular velocity, in radians per second.

Which equation represents the angular velocity, w , in terms of K and I ?

A. $w = \pm\sqrt{\frac{K}{2I}}$

B. $w = \pm\frac{\sqrt{K}}{2I}$

C. $w = \pm\frac{\sqrt{2K}}{I}$

D. $w = \pm\sqrt{\frac{2K}{I}}$

- 00.** A system of equations is shown.

$$\begin{cases} x + y + 13 = 0 \\ y = x^2 + 10x + 15 \end{cases}$$

Which ordered pairs represent solutions to the system?

Select the **two** correct answers.

- A.** $(-13, 0)$
- B.** $(-7, -6)$
- C.** $(-5, -10)$
- D.** $(-4, -9)$
- E.** $(0, -13)$

00. The graph of $g(x)$ is the image of $f(x) = x^2$ after the given transformations.

- A reflection over the x -axis
- A vertical translation of 4 units up
- A horizontal translation of 3 units to the right

Which equation represents $g(x)$?

A. $g(x) = -(x - 3)^2 + 4$

B. $g(x) = -(x + 3)^2 - 4$

C. $g(x) = (x - 3)^2 + 4$

D. $g(x) = (x + 3)^2 - 4$

00. Which equation represents the solution to $3 \cdot 2^{3t} = 48$?

A. $t = \log_2(16)$

B. $t = \log_2\left(\frac{48}{9}\right)$

C. $t = \frac{\log_2 48}{9}$

D. $t = \frac{\log_2 16}{3}$

Metadata- Math

Items

Page Number	UIN	Grade	Item Type	Key	DOK	TN Standards	Calculator
1	TN346040	Algebra 2	MC	B	2	A2.N.RN.A.1.c	Y
2	T2A03S672	Algebra 2	MC	D	2	A2.A.CED.A.3	N
3	TN0032267	Algebra 2	MS	B, D	2	A2.A.REI.B.4	Y
4	TN0065612	Algebra 2	MC	A	2	A2.F.BF.B.3	N
5	TN0069428	Algebra 2	MC	D	2	A2.F.LE.A.1.b	Y

Metadata Definitions:

UIN	Unique letter/number code used to identify the item.
Grade	Grade level or Course.
Item Type	Indicates the type of item. MC= Multiple Choice; MS= Multiple Select; FIB = Fill-in-the-blank
Key	Correct answer.
DOK	Depth of Knowledge (cognitive complexity) is measured on a three-point scale. 1 = Recall or simple reproduction of information; 2 = Skills and concepts: comprehension and processing of text; 3 = Strategic thinking, prediction, elaboration.
TN Standards	Primary educational standard assessed.
Calculator	Y for items that permit calculator use.