Teaching Strategies with TI-84 CE and TI-Nspire CX Technology to Prepare Scholars for STAAR Grade 8/Algebra 1 EOC Tests

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Presenter –Valerie Hudson

Valerie is an educator with over 30 years of Texas teaching experience with middle and high school mathematics. Currently retired from working with students full time, Valerie continues to be actively involved in the education community by writing curriculum and working with teachers and students through her work as a T^3 Systemic PD Regional Supervisor and Texas Instruments Instructor.

Presenter –Brenda Lynch

Brenda is an educator with over 42 years of experience teaching students in the classroom and working at the district and region level to support teachers as they grow professionally.

She “retired” 2 years ago, but has remained very connected by continuing to work with teachers and students as a Texas Instruments Instructor.

Please Type in the Chat:

Which calculator do your students use?

A: TI-84 Plus Family

B: TI-Nspire CX Family

8th Grade/Algebra I Assessment Examples

Encourage deeper mathematical understanding through grading in context

8th Grade Assessment Examples

1. What is the rate of change of the line given by the table below?

x	y
-3	-16
-1	-10
2	-1
6	11

Rewrite Formula/Problem (+5 Pt):

Work Shown (+15 Potential Pts):

Solution: (+5 Pt): _____

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Algebra I Assessment Examples

2. What is the slope of the line perpendicular to the line $6y - 1 = 8x + 5$?

Rewrite Formula/Problem (+5 Pt):

Work Shown (+15 Potential Pts):

Solution: (+5 Pt): _____

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https://tea.texas.gov/sites/default/files/2022-23-staar-calculator-policy.pdf

STAAR®
State of Texas Assessments of Academic Readiness

STAAR Calculator Policy

Calculators are required for the following State of Texas Assessments of Academic Readiness (STAAR®) tests: **grade 8 mathematics, grade 8 science, Algebra I,** and **Biology**.

Calculators are not permitted for students taking the STAAR grades 3–7 mathematics assessments or the STAAR grade 5 science assessment unless the student meets the eligibility criteria. Information regarding calculators as a designated support for students with disabilities can be found on the Accommodation Resources webpage.

Requirement for STAAR Grade 8 Mathematics and Algebra I

Districts must ensure that each student has a graphing calculator to use when taking the STAAR grade 8 mathematics or Algebra I assessments. Students must have a graphing calculator throughout the entire test for both paper and online versions. Districts may satisfy this requirement by providing students with any of the following types of calculating devices: a handheld graphing calculator, a graphing calculator application, or the graphing calculator tool included in the Test Delivery System (TDS).

Requirement for STAAR Grade 8 Science and Biology

Districts must ensure that students have access to a calculator with basic (i.e., four-function) capability when taking the STAAR grade 8 science and Biology assessments. Scientific or graphing calculators are allowed but are not required. There should be at least one calculator for every five students taking the grade 8 science and Biology assessments, whether online or on paper. If calculators are shared during the test, the calculator memory must be cleared after each student uses it. Districts may satisfy this requirement by providing students with any of the following types of calculating devices: a handheld calculator, a calculator application, or the calculator tools included in TDS.

Additional Information About Calculators

The district may provide calculating devices, or students may bring them from home. Students should be provided the same type of calculation device they use routinely in classwork. Providing an unfamiliar calculation device on the day of the state assessment may hinder rather than aid the student. Students may have more than one calculation device during the assessment.

Texas Education Agency
Student Assessment Division
September 2022

https://tea.texas.gov/sites/default/files/2022-23-staar-calculator-policy.pdf

STAAR®
State of Texas Assessments of Academic Readiness

For handheld calculators, all memory must be cleared to factory default both before and after testing. Any programs or applications must be removed or disabled before testing. Districts should be aware that some programs or applications include resources that could aid students during testing. Students must be monitored closely to ensure that these resources are not accessed during the test. If included on the device, the following functions must be disabled during testing: geometry functions; graphing implicit equations and inequalities; graphing inequalities (calculator/application automatically interprets the inequality symbol); and functions that automatically calculate mean absolute deviation. Contact the manufacturer for assistance with preparing calculators and graphing applications for use during testing.

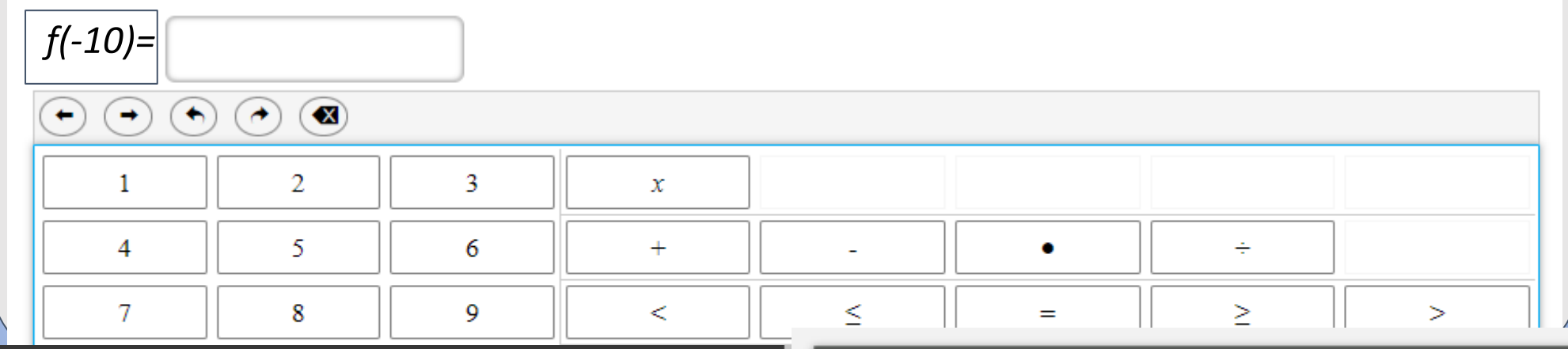
For calculator applications, all Internet capabilities must be disabled on the device. In addition, the calculator application being used must be locked down (in kiosk mode) to prevent the use of other applications during testing. Districts should be aware that some calculator applications include resources that could aid students during testing. Students must be monitored closely to ensure that these resources are not accessed during the test. If included in the application, the following functions must be disabled during testing: geometry functions; graphing implicit equations and inequalities; graphing inequalities (calculator/application automatically interprets the inequality symbol); and functions that automatically calculate mean absolute deviation.

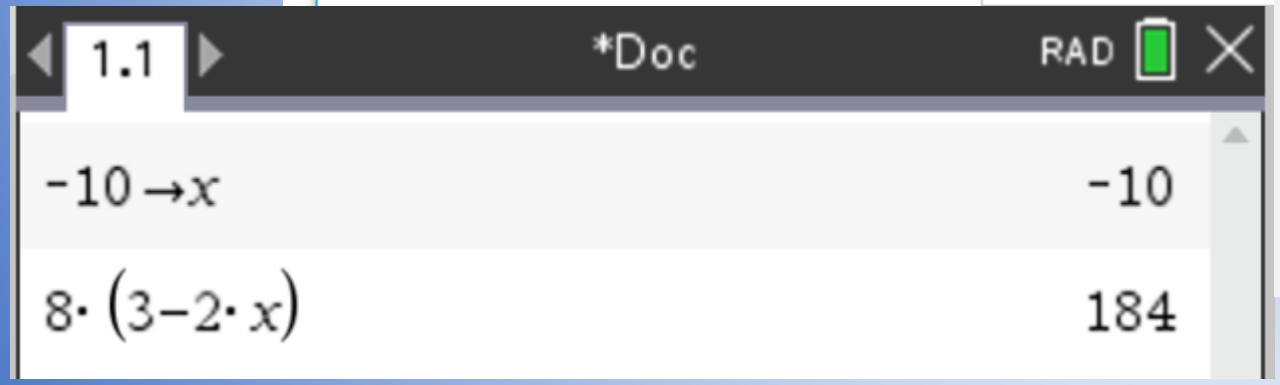
The use of a calculating device on STAAR should not replace the teaching of the Texas Essential Knowledge and Skills (TEKS). If a student uses a particular calculator during classroom instruction, it is important to be aware of any device functions that could compromise teaching the associated skills. As such, district and school personnel should give careful consideration before recommending the use of these devices for the assessment. Districts should be aware that some calculators and applications include resources that could aid students during testing. Students must be monitored closely to ensure that these resources are not accessed during the test.

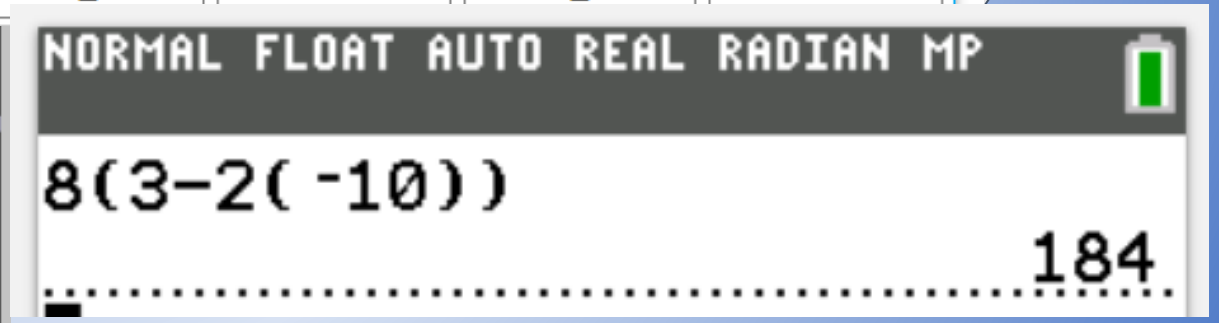
Calculation devices with a computer algebra system (CAS) are not allowed unless the CAS is disabled. Calculation applications on smartphones are also not allowed.

Algebra 1 Test Strategy: Calculator Tools
(Assign or Define, Substitution)

Given *f(x) = 8(3-2x)*, what is the value of *f(-10)*?



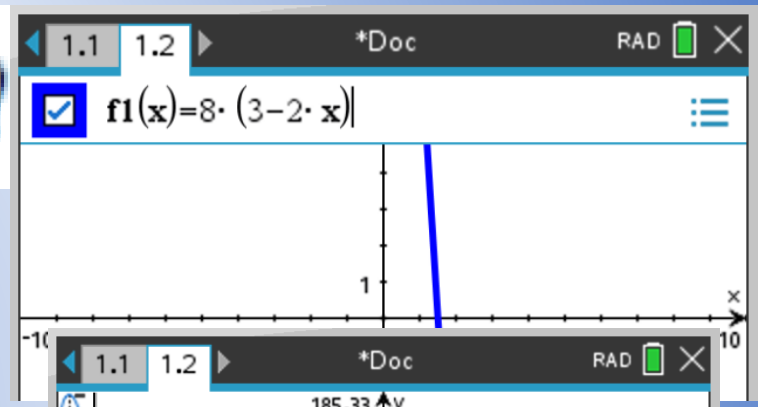


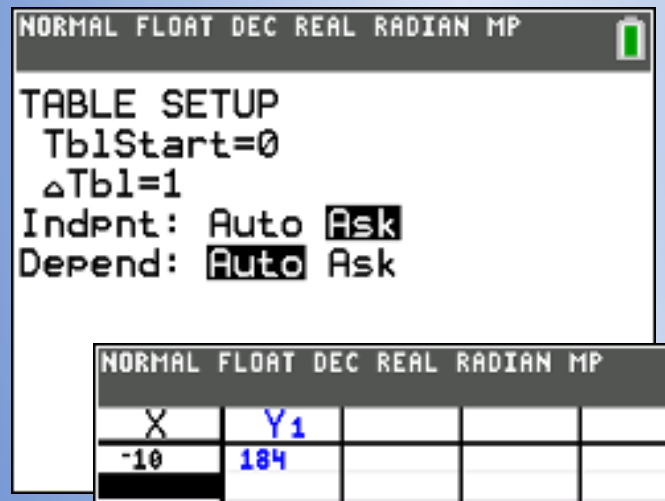


Algebra 1 Test Strategy: Analyze This!

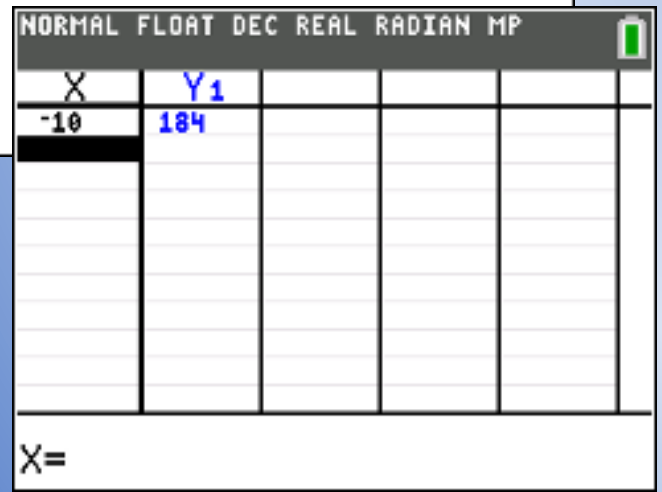
(Graph Whenever Possible)

Given $f(x) = 8(3 - 2x)$, what is the value of $f(-10)$?



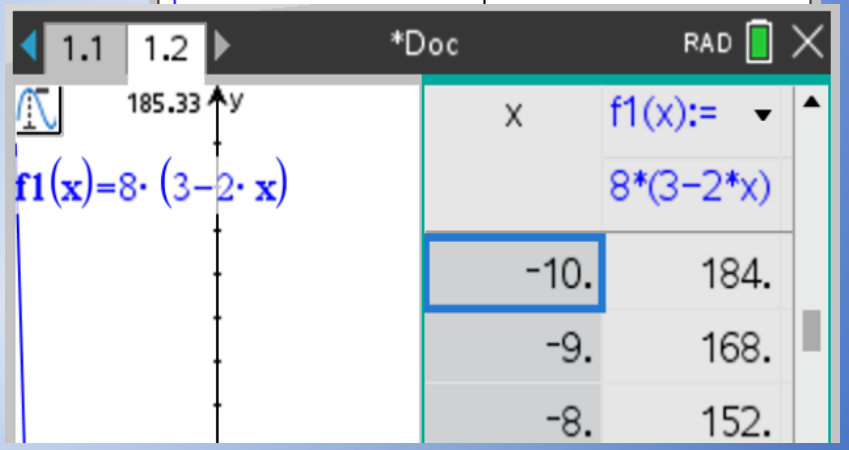


Set Independent to "Ask" in Table Set



Graph, Menu, Trace, Graph Trace

Graph, Ctl, T



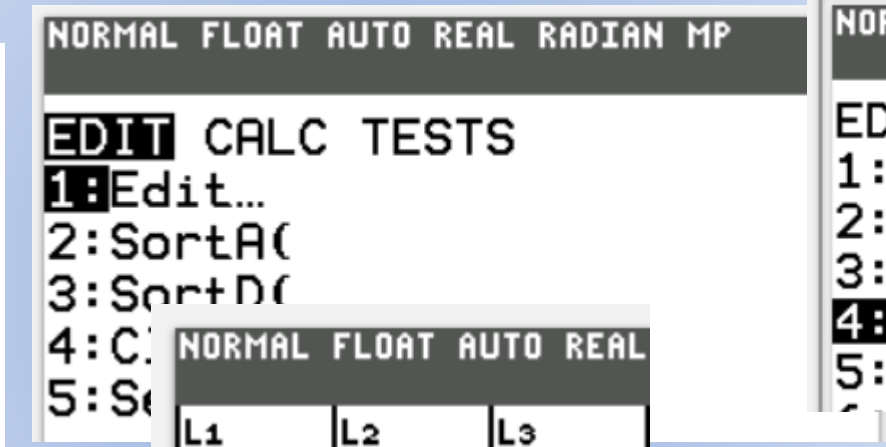
Grade 8 Test Strategy: TI-Nspire Calculator Tools – Linear Regression with Data

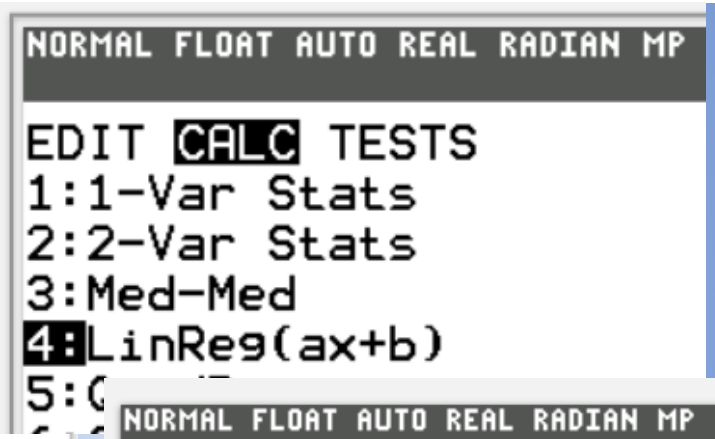
The table shows the cost, *c*, of a number of lunch specials, *l*, purchased by office staff.

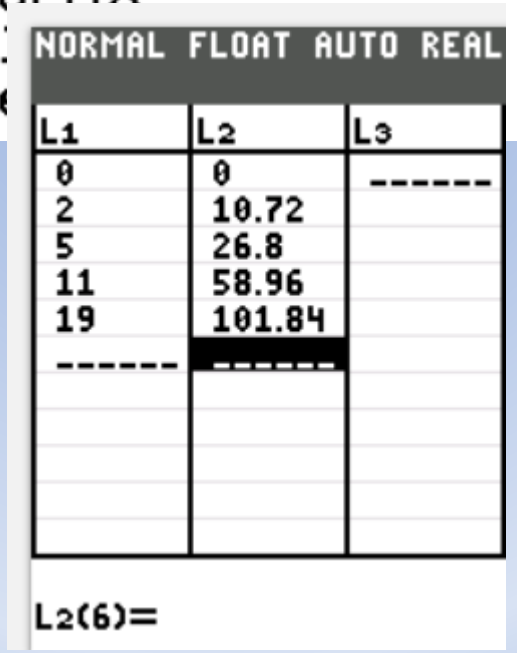
Based on the data in the table, what will be the total cost of lunches for an office of 236 people?

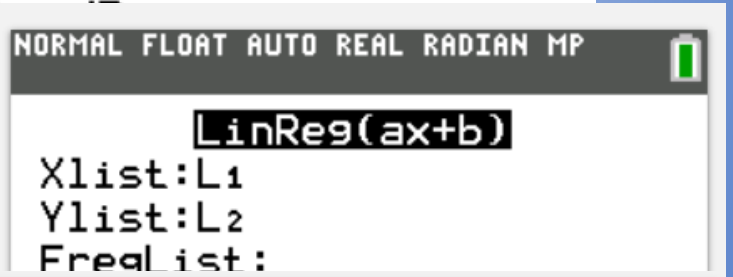
Cost of Lunch

Number of lunches, *l*	Cost, *c*
0	0
2	10.72
5	26.80
11	58.96
19	101.84









Grade 8 Test Strategy: TI-Nspire Calculator Tools
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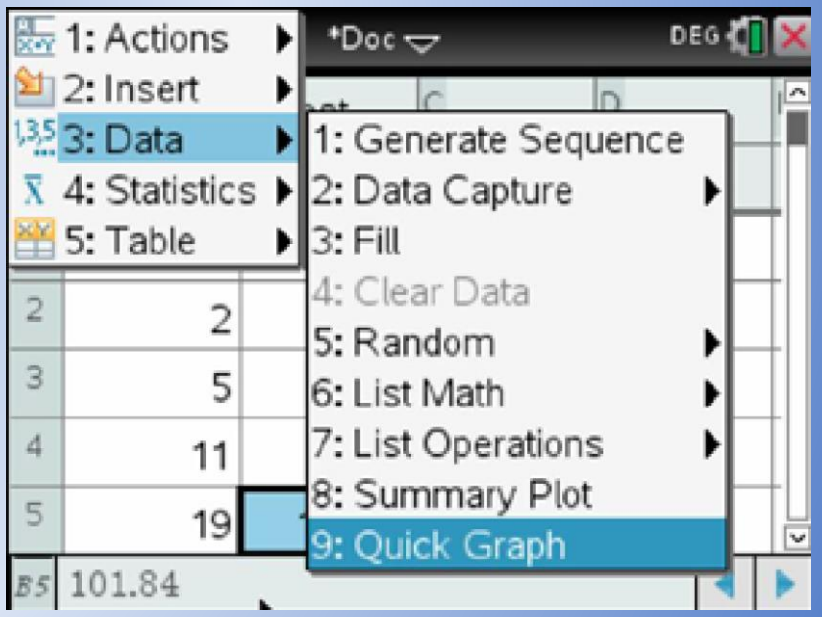

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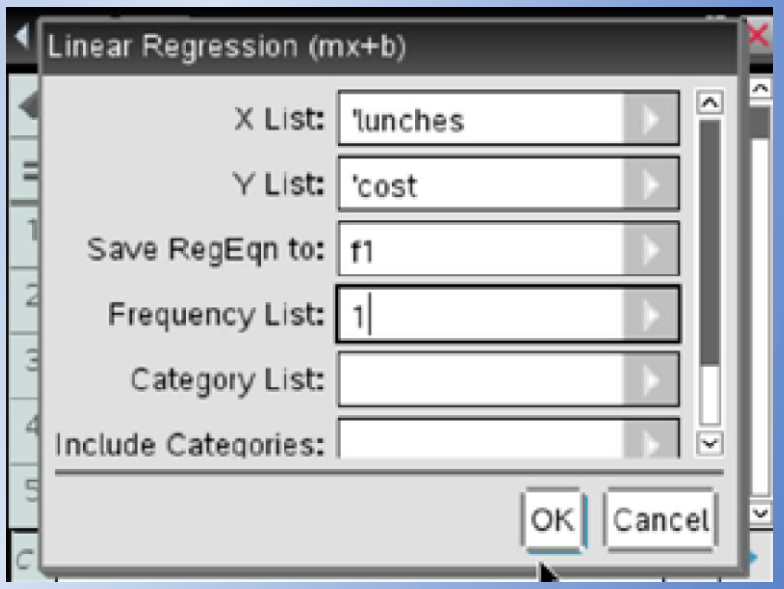

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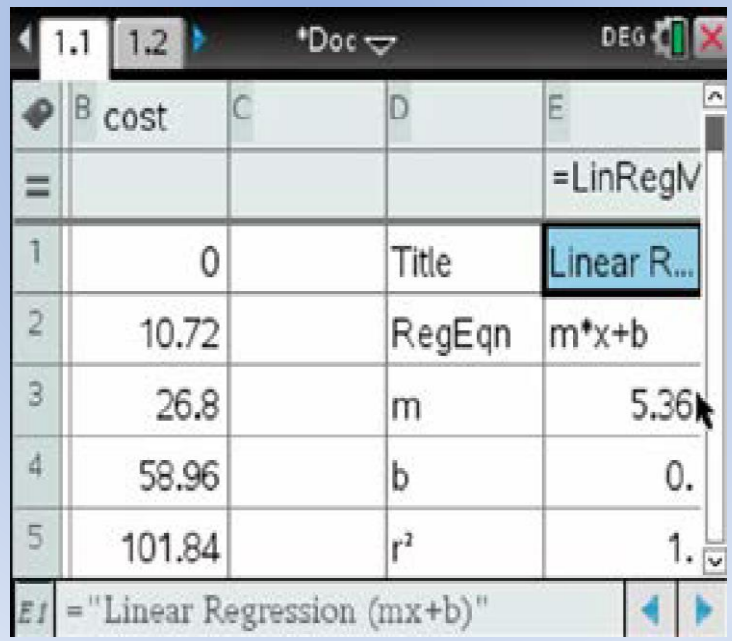
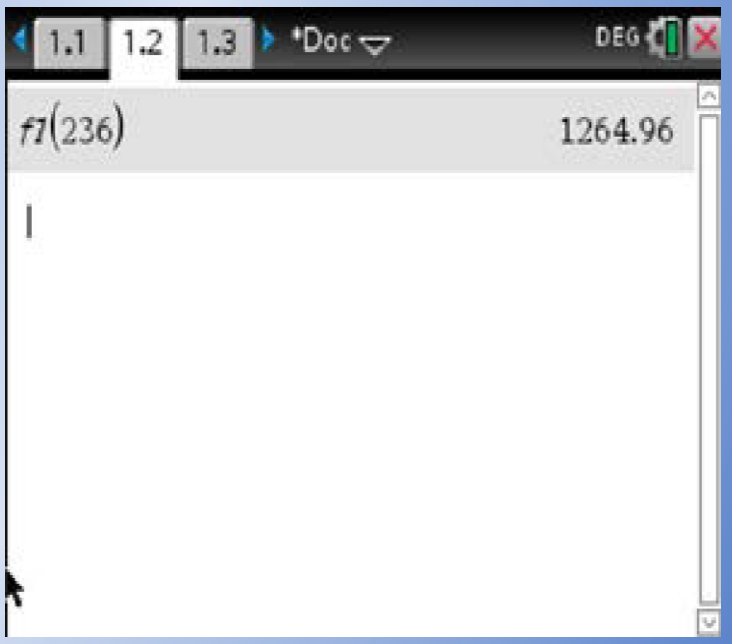




New Question Types-Hot Spot

Identify the attributes of the graph of $y = 20(\frac{1}{4})^x$ by filling in the appropriate squares. Values may be used more than once or not at all.

Value	Y-Intercept	Asymptote
Y = 0	○	●
Y = 1	○	○
Y = 4	○	○
Y = 20	●	○
Type	Growth ○	Decay ●

New Question Types - Drag & Drop

A population of rabbits is represented by the equation: $y = 42(2)^x$

Enter the correct term in each box and complete the sentence. Not all choices will be used.

horizontal **vertical** **linear** **exponential** **quadratic**
growth **decay** **x=0** **y=0** **x=2** **y=2**

This equation represents an _____ _____ and the

_____ asymptote is y= _____.

New Question Types

A population of rabbits is represented by the equation: $y = 42(2)^x$

Enter the correct term in each box and complete the sentence. Not all choices will be used.

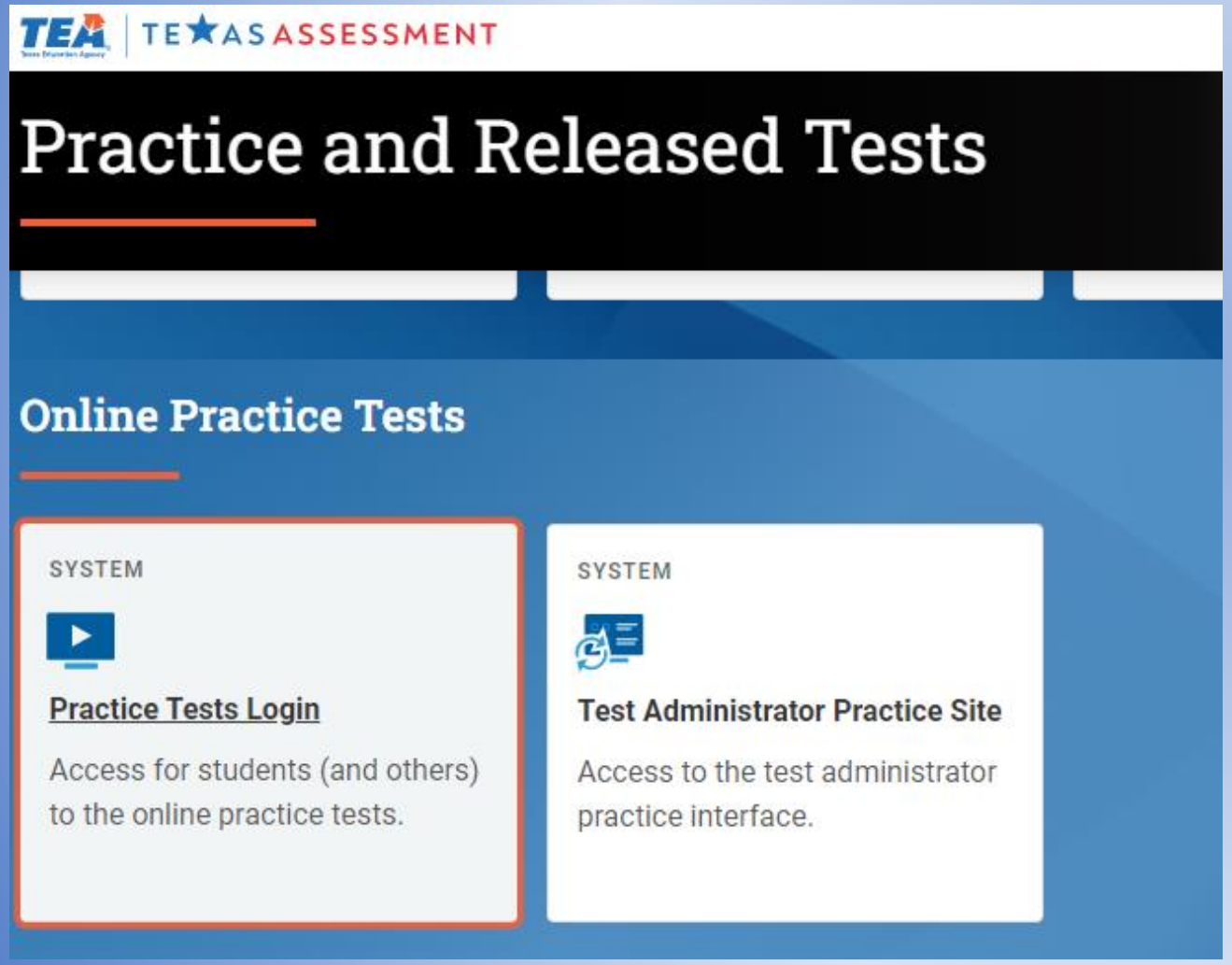
vertical linear quadratic
decay x=0 x=2 y=2

This equation represents an exponential growth and the

horizontal asymptote is y= 0.

New Question Types

https://www.texasassessment.gov/practice-tests.html



New Question Types

https://www.texasassessment.gov/practice-tests.html

TEA | TEXAS ASSESSMENT

Practice and Released Tests

Online Practice Tests

SYSTEM

Practice Tests Login

Access for students (and others) to the online practice tests.

Please Sign In

ON — Guest User
Toggle to sign in as yourself

ON — Guest Session
Toggle to join an active session

Sign In

Student Grade Level: Select Grade

Please select a grade.

Student Grade Level: EOC

2022 STAAR Redesign Practice Tests

STAAR New Item Types

Mathematics

Algebra I

Start 2021 STAAR Algebra I New Item Types

Additional Resources

TI-Nspire 8th Grade and Algebra 1 EOC Questions by TEK:

http://ti-enews-education.ti.com/alignment-teachers

Additional Resources

Texas-Specific Resources:

https://education.ti.com/en/resources/teks?category=staar-resources

TI Student Camps

https://education.ti.com/en/resources/student-camp

Additional Resources

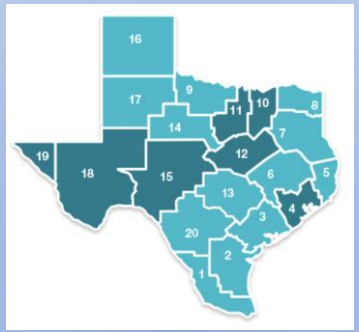
Math Nspired:

https://education.ti.com/en/timathnspired/us/home

Texas Instruments Educational Workshops

https://education.ti.com/en/t3-professional-development/schools-and-districts/onsite-workshops

Your TI Education Technology Consultants for Texas



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TX ESC's 1-3, 5-9, 13-14, 16-17 & 20

Pareesa Schulte
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TX ESC's 4, 10-12, 15, 18, 19

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Additional Example
Sequences on TI-Nspire and TI 84

Algebra I Focus: Test Strategy: Graph Whenever Possible

Use the recursive formula $a_1 = 25;\ a_n = a_{n-1} - 6$ to identify the answer choice that includes the seventh, eighth, and ninth terms in the arithmetic sequence.

The seventh term is

The eighth term is

The ninth term is

Algebra I Test Strategy: Graph Whenever Possible
(Sequencing and Patterning)

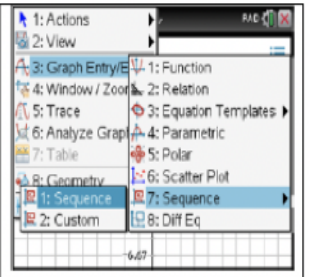
Use the recursive formula $a_1 = 25;\ a_n = a_{n-1} - 6$ to identify the answer choice that includes the seventh, eighth, and ninth terms in the arithmetic sequence.

The seventh term is _____.

The eighth term is _____.

The ninth term is _____.

1. Open a new TI-Nspire™ CX document and select **Add Graphs**.
2. If desired, place a lined grid on the graph by pressing [menu] and selecting **View > Grid > Lined Grid**.
3. Press [menu] and select **Graph Entry/Edit > Sequence > Sequence**.

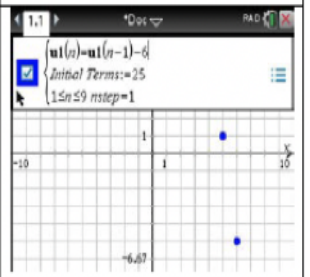


Generate the arithmetic sequence

$a_1 = 25$

$a_n = a_{n-1} - 6$.

4. In the entry line, enter the formula represented by the previous term, a_{n-1}, and the common difference, -6, as u(n - 1) – 6.
5. Enter the *Initial Terms* with the value of the first term. In this case, enter 25.
6. To generate 9 terms for this sequence, set the domain to $1 \le n \le 9$ with an *nstep* of 1.
7. Press [enter] to graph the sequence.



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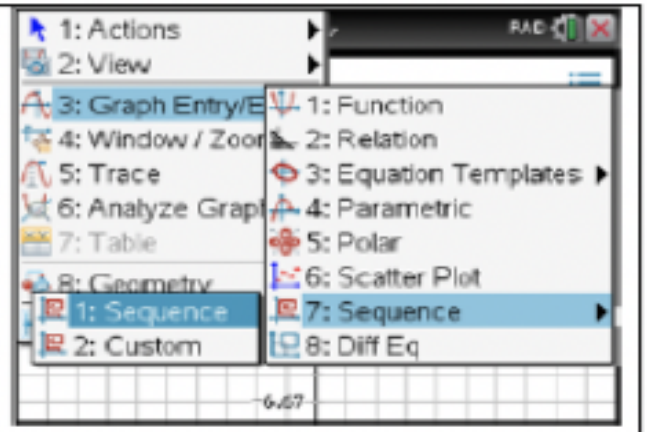

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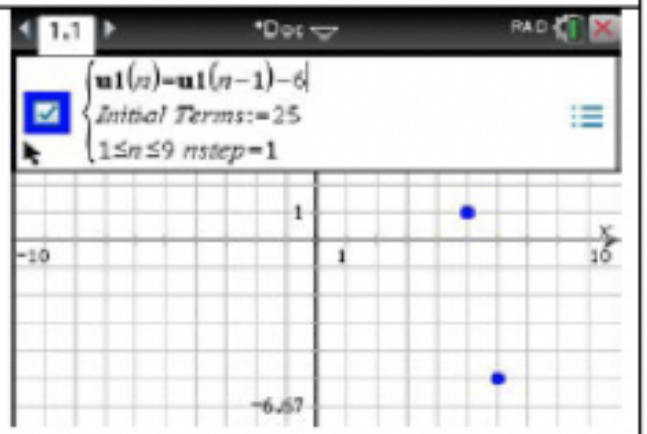

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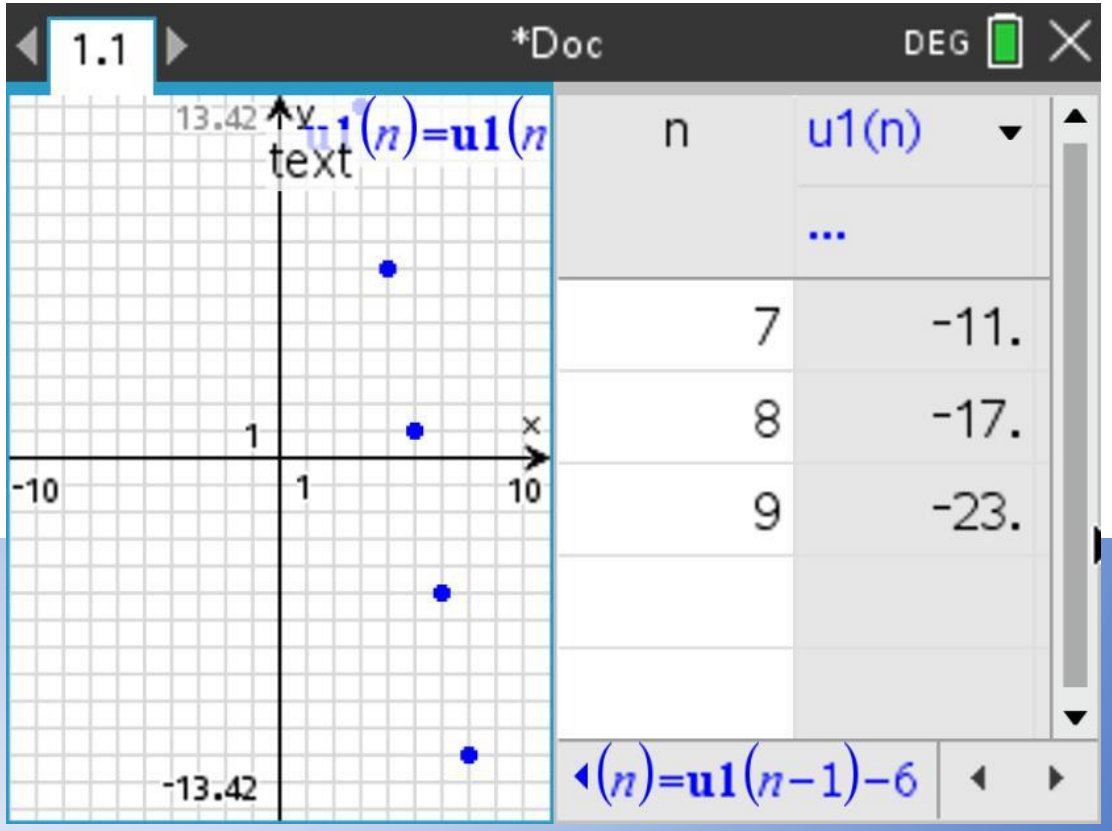
Algebra I Test Strategy: Graph Whenever Possible
(Sequencing and Patterning)

Use the recursive formula $a_1 = 25;\ a_n = a_{n-1} - 6$ to identify the answer choice that includes the seventh, eighth, and ninth terms in the arithmetic sequence.

The seventh term is _____.

The eighth term is _____.

The ninth term is _____.

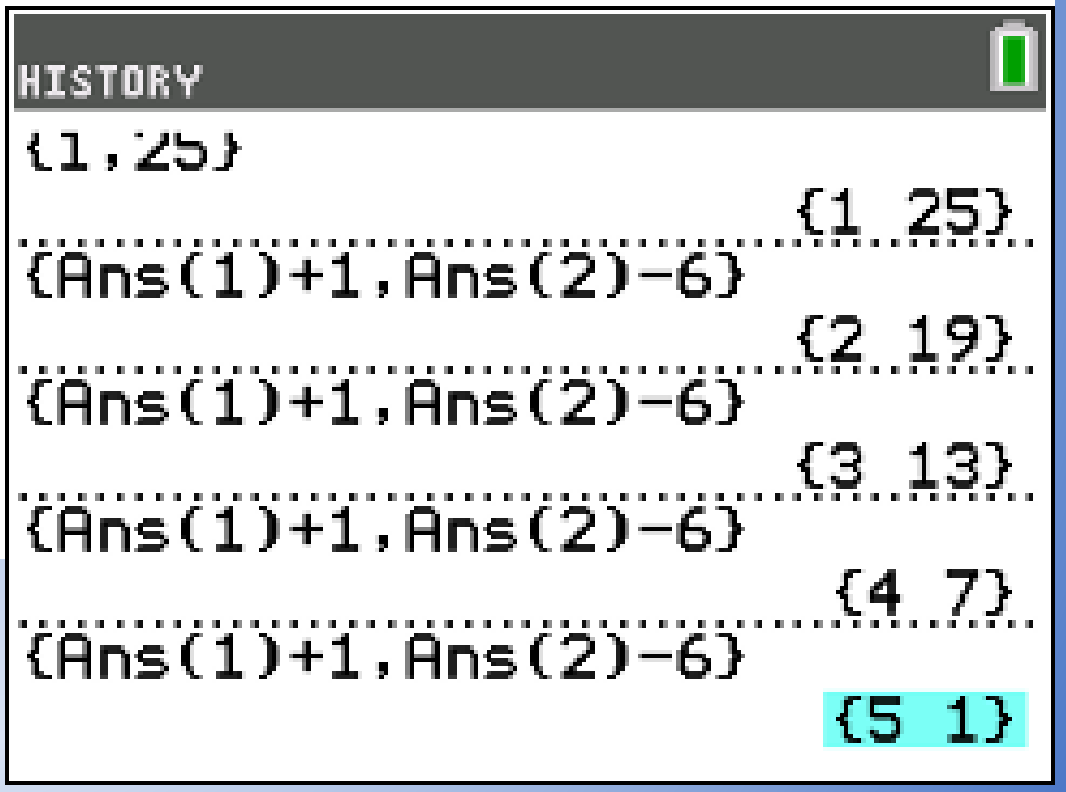


Algebra I Test Strategy: Calculator Tools
(Sequencing and Patterning)

Use the recursive formula $a_1 = 25;\ a_n = a_{n-1} - 6$ to identify the answer choice that includes the seventh, eighth, and ninth terms in the arithmetic sequence.

A. 61, 67, 73

*B. –11, –17, –23

C. 25, 19, 13

D. 1, 2, 3