The STAARS At Night

The stars at night were big and bright, deep in the heart of Texas, until someone plucked them from the sky and locked them up. Can you solve the clues to release the stars back into the sky? Will you be the star of STAAR?

Go to page 1.2, and press enter to begin.

clue1()

Problem 2

The Remote Associates Test (RAT) is a creativity test used to determine a human's creative potential. Questions on the test consist of three common stimulus words that appear to be unrelated. The person being tested must think of a fourth word that is somehow related to each of the first three words.

For example: Given "Falling Actor Dust", the fourth word is "Star". You can have a falling star or star dust, and actors are known as stars.

Your possible fourth words are the colors on page 2.2.

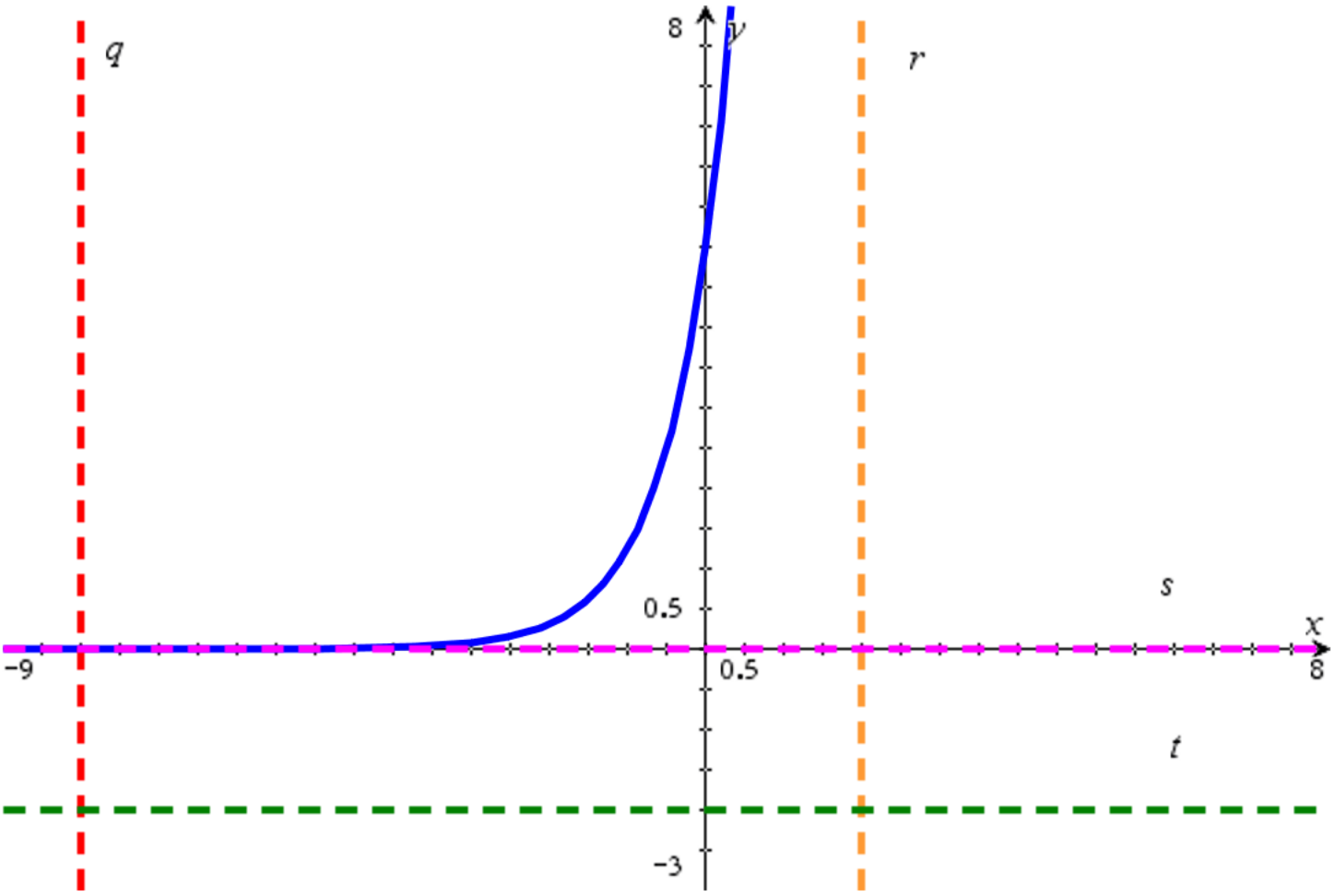
0 1 2 3 4

5 6 7 8 9

Problem 3

The graph of an exponential function is shown on page 3.2.
Which dashed line is an asymptote for the graph?

- F. Line q
- M. Line r
- P. Line s
- S. Line t



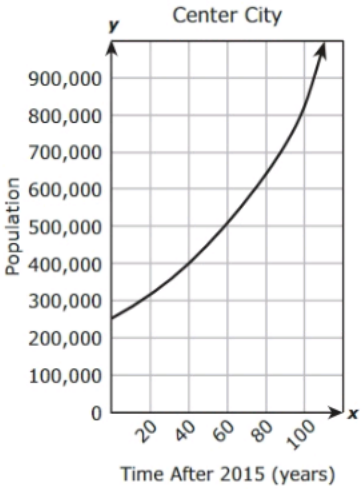
3.2

A particular type of cell doubles in number every hour. Which function can be used to find the number of cells present at the end of h hours if there are initially 4 of these cells?

- A. $n=4\left(\frac{1}{2}\right)^h$
- I. $n=4(2)^h$
- O. $n=4+(2)^h$
- T. $n=4+\left(\frac{1}{2}\right)^h$

The population of Center City is modeled by exponential function *f*, where *x* is the number of years after the year 2015. The graph of *f* is shown on page 3.5.
Which inequalitiy best represents the range of *f* in this situation?

- A. $x \geq 0$
- L. $y \geq 250{,}000$ ↓
- S. $0 \leq x \leq 110$ ↓
- T. $250{,}000 \leq y \leq 1{,}000{,}000$


Center City
y
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
Population
20
40
60
80
100
x
Time After 2015 (years)

A student used $f(x)=5.00(1.012)^x$ to show how the balance in a savings account will increase over time. What does the 5.00 represent?

- A. The interest the savings account earned for the first year.
- D. The annual interest rate of the savings account.
- S. The number of years the savings account has earned interest.
- T. The starting balance of the savings account.

The amount of fertilizer in a landscaping company's warehouse decreases at a rate of 3% per week. The amount of fertilizer in the warehouse was originally 78,000 cubic yards. Which function models the amount of fertilizer in cubic yards left after w weeks?

- H. $f(w)=0.97(78{,}000)^w$
- N. $f(w)=1.03(78{,}000)^w$ ↓
- R. $f(w)=78{,}000(0.97)^w$ ↓
- Y. $f(w)=78{,}000(1.03)^w$

Problem 4

Which expression is equivalent to $(7x^3)^2(x^8)^{1/2}$?

- $14x^{10}$
- $49x^{10}$
- $14x^7$
- $49x^7$

Problem 5

Which expressions are factors of $6x^2+13x+5$?

Which expressions are factors of $x^2-13x-30$?

Which expressions are factors of $18x^2-15x+2$?