

شكراً لتحميلك هذا الملف من موقع المناهج الإماراتية



تجميع أسئلة وفق الهيكل الوزاري باللغة الانجليزية

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التواصل الاجتماعي بحسب الصف الحادي عشر العام



روابط مواد الصف الحادي عشر العام على تلغرام

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المزيد من الملفات بحسب الصف الحادي عشر العام والمادة رياضيات في الفصل الثاني

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المزيد من الملفات بحسب الصف الحادي عشر العام والمادة رياضيات في الفصل الثاني

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هيكل الاختبار

11 General

MATH 2023-2024
MR – AHMED ATA

T2

اشترك في جروب الواتس
حتى تشاهد شرح الهيكل من
خلال مسح الباركود



1

Find $(f + g)(x)$, $(f - g)(x)$, $(f \cdot g)(x)$, and $\left(\frac{f}{g}\right)(x)$ for each $f(x)$ and $g(x)$. Indicate any restrictions in domain or range.

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$$f(x) = 2x$$

$$g(x) = -4x + 5$$

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2

Find $(f + g)(x)$, $(f - g)(x)$, $(f \cdot g)(x)$, and $\left(\frac{f}{g}\right)(x)$ for each $f(x)$ and $g(x)$. Indicate any restrictions in domain or range.

$$f(x) = x - 1$$

$$g(x) = 5x - 2$$

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3

Find $(f + g)(x)$, $(f - g)(x)$, $(f \cdot g)(x)$, and $\left(\frac{f}{g}\right)(x)$ for each $f(x)$ and $g(x)$. Indicate any restrictions in domain or range.

$$f(x) = 3x$$

$$g(x) = -2x + 6$$

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4

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For each pair of functions, find $f \circ g$ and $g \circ f$, if they exist. State the domain and range for each composed function.

$$f = \{(-15, -5), (-4, 12), (1, 7), (3, 9)\} \quad g = \{(3, -9), (7, 2), (8, -6), (12, 0)\}$$

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5

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For each pair of functions, find $f \circ g$ and $g \circ f$, if they exist. State the domain and range for each composed function.

$$f = \{(-1, 11), (2, -2), (5, -7), (4, -4)\}$$

$$g = \{(5, -4), (4, -3), (-1, 2), (2, 3)\}$$

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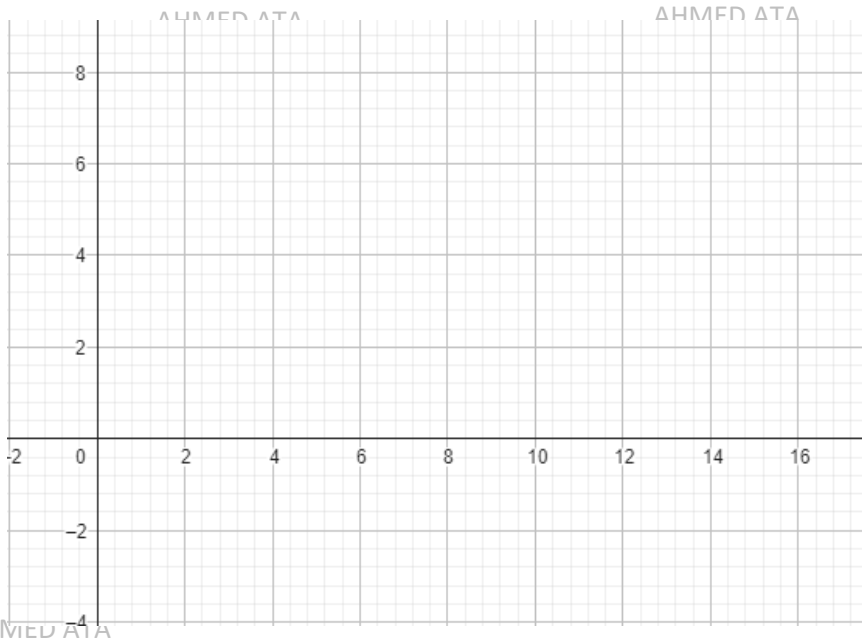
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6

Graph each inequality.

$$y < \sqrt{x - 5}$$



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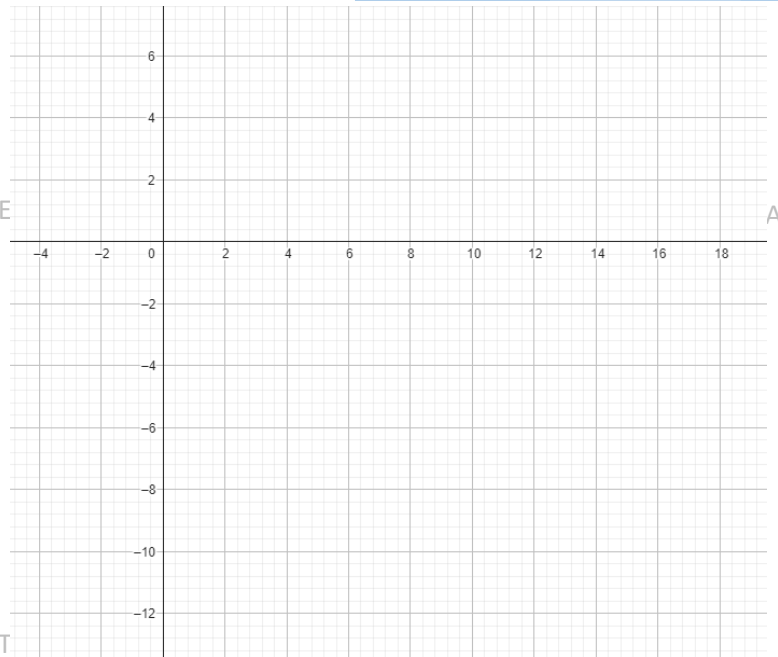
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7

Graph each inequality.

$$y \geq -4\sqrt{x+3}$$



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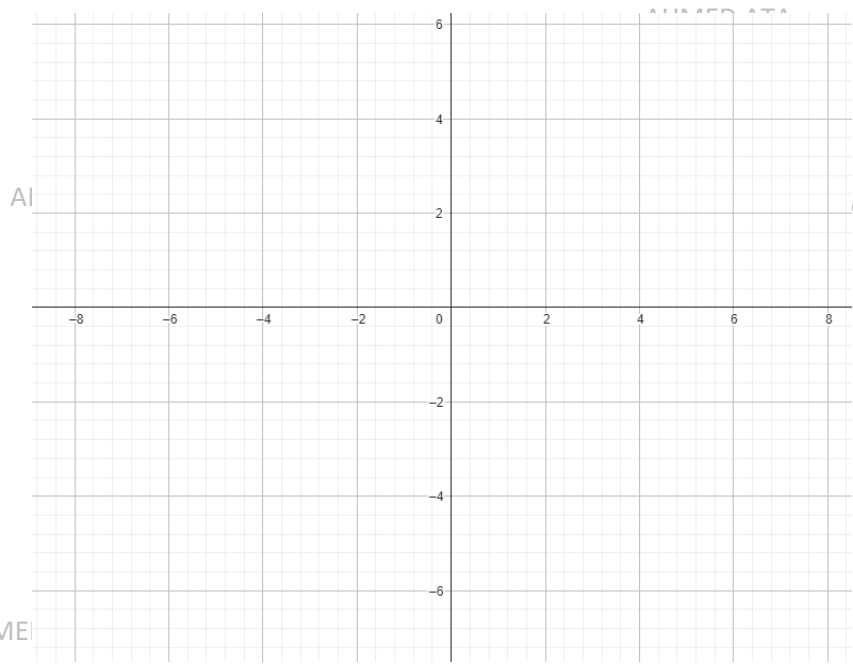
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Graph each inequality.

$$y > 2\sqrt{x+7} - 5$$



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9

Simplify.

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$$\sqrt{196c^6d^4}$$

$$\sqrt{-64y^8z^6}$$

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$$\sqrt{400x^{16}y^6}$$

$$\sqrt[3]{8c^3d^{12}}$$

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10

Simplify

$$5\sqrt{2x} \cdot 3\sqrt{8x}$$

$$3\sqrt[3]{36xy} \cdot 2\sqrt[3]{6x^2y^2}$$

$$5\sqrt{32} + \sqrt{27} + 2\sqrt{75}$$

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11

Simplify

$$(4 + 2\sqrt{5})(3\sqrt{3} + 4\sqrt{5})$$

$$(8\sqrt{3} - 2\sqrt{2})(8\sqrt{3} + 2\sqrt{2})$$

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12

Simplify

$$\frac{4 + \sqrt{2}}{\sqrt{2} - 3}$$

$$\frac{5}{\sqrt{2} + 3}$$

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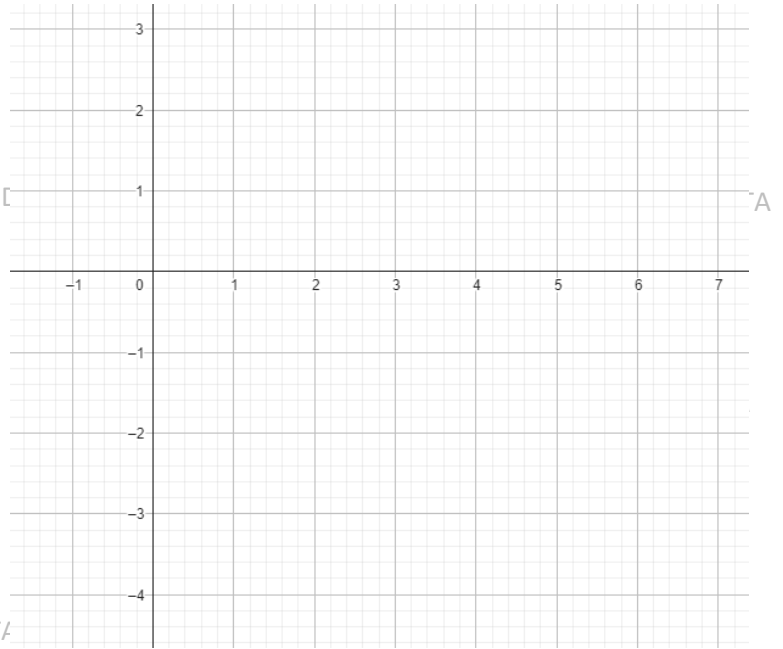
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13

Graph each function.

$$f(x) = \log_3 x$$



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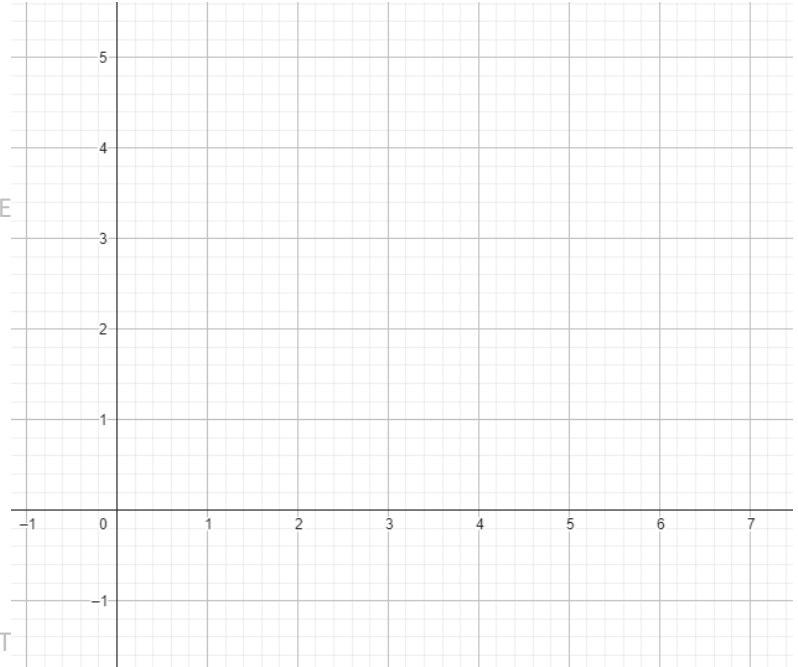
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14

Graph each function.

$$f(x) = \log_{\frac{1}{6}} x$$



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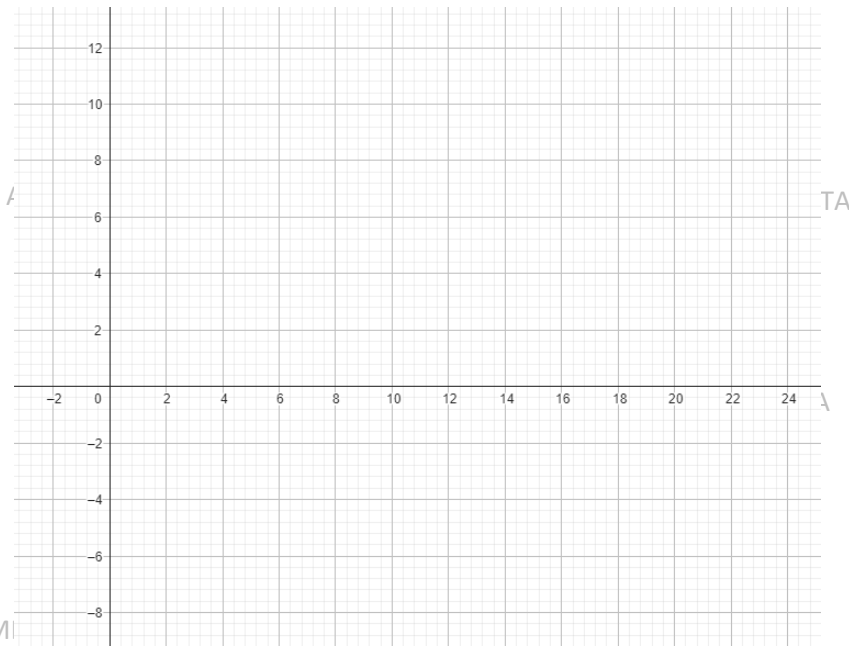
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15

Graph each function.

$$f(x) = 4 \log_4 (x - 6)$$



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16

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Evaluate each expression.

$$\log_3 \frac{1}{9}$$

$$\log_4 \frac{1}{64}$$

$$\log_8 512$$

$$\log_{27} 3$$

$$\log_{32} 2$$

$$\log_9 3$$

$$\log_{\frac{1}{5}} 3125$$

$$\log_{\frac{1}{8}} 512$$

$$\log_{\frac{1}{3}} \frac{1}{81}$$

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17

State whether each equation is true or false.

$$\log_8 (x - 3) = \log_8 x - \log_8 3$$

$$\log_5 22x = \log_5 22 + \log_5 x$$

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18

State whether each equation is true or false.

$$\log_{10} 19k = 19 \log_{10} k$$

$$\log_2 y^5 = 5 \log_2 y$$

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19

State whether each equation is true or false.

$$\log_7 \frac{x}{3} = \log_7 x - \log_7 3$$

$$\log_4 (z + 2) = \log_4 z + \log_4 2$$

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20

Write an equivalent exponential or logarithmic function.

$$e^{-x} = 8$$

$$e^{-5x} = 0.1$$

$$e^{x-3} = 2$$

$$\ln(x + 4) = 36$$



21

Write an equivalent exponential or logarithmic function.

$$\ln 0.25 = x$$

$$\ln 5.4 = x$$

$$e^{-2} = x^6$$

$$\ln e^x = 7$$



22

Write each as a single logarithm.

$$\ln 125 - 2 \ln 5$$

a) $\ln 5$

b) $7 \ln 10$

c) $-8 \ln \frac{1}{3}$

d) $-2 \ln 2$



23

Write each as a single logarithm.

$$3 \ln 10 + 2 \ln 100$$

a) $\ln 5$

b) $7 \ln 10$

c) $-8 \ln \frac{1}{3}$

d) $-2 \ln 2$



Write each as a single logarithm.

$$4 \ln \frac{1}{3} - 6 \ln \frac{1}{9}$$

a) $\ln 5$

b) $7 \ln 10$

c) $-8 \ln \frac{1}{3}$

d) $-2 \ln 2$



25

Write each as a single logarithm.

$$7 \ln \frac{1}{2} + 5 \ln 2$$

a) $\ln 5$

b) $7 \ln 10$

c) $-8 \ln \frac{1}{3}$

d) $-2 \ln 2$



26

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Simplify each expression.

$$\frac{12y}{5x} + \frac{5x}{4y^3}$$

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$$\frac{5}{6ab} + \frac{3b^2}{14a^3}$$

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27

Simplify each expression.

$$\frac{7b}{12a} - \frac{1}{18ab^3}$$

$$\frac{y^2}{8c^2d^2} - \frac{3x}{14c^4d}$$

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28

Simplify each expression.

$$\frac{4x}{x^2 + 9x + 18} + \frac{5}{x + 6}$$

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29

Simplify each expression.

$$\frac{4}{3x + 6} - \frac{x + 1}{x^2 - 4}$$

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Determine the value of x for which each function is not defined.

$$f(x) = \frac{3}{2x + 5}$$

$$f(x) = \frac{2}{x - 1}$$

$$f(x) = \frac{7}{3x + 2}$$

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31

Find the next three terms of each geometric sequence.

8, 12, 18, 27, ...

8, 16, 32, 64, ...

250, 50, 10, 2, ...

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32

Find the next three terms of each geometric sequence.

$9, -3, 1, -\frac{1}{3}, \dots$

$\frac{1}{3}, 1, 3, 9, \dots$

$1, 0.1, 0.01, 0.001, \dots$

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33

Find the indicated term of each arithmetic sequence.

$$a_1 = -18, d = 12, n = 16$$

$$a_1 = -12, n = 66, d = 4$$

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34

Find the indicated term of each arithmetic sequence.

a_{15} for $-5, -12, -19, \dots$

a_{10} for $-1, 1, 3, \dots$

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35

Write an equation for the nth term of each geometric sequence.

2, 4, 8, ...

18, 6, 2, ...

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36

Write an equation for the nth term of each geometric sequence.

$$a_2 = 4, r = 3$$

$$a_6 = \frac{1}{8}, r = \frac{3}{4}$$



37

Determine whether each pair of functions are inverse functions.

$$f(x) = 2x + 3$$

$$g(x) = 2x - 3$$

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Determine whether each pair of functions are inverse functions.

$$f(x) = 4x + 6$$

$$g(x) = \frac{x - 6}{4}$$



Determine whether each pair of functions are inverse functions.

$$f(x) = -\frac{1}{3}x + 3$$

$$g(x) = -3x + 9$$

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Determine whether each pair of functions are inverse functions.

$$f(x) = -6x$$

$$g(x) = \frac{1}{6}x$$



41

Determine whether each pair of functions are inverse functions.

$$f(x) = \frac{1}{2}x + 5$$

$$g(x) = 2x - 10$$

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42

Solve each equation.

$$\sqrt{2x + 5} - 4 = 3$$

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43

Solve each equation.

$$6 + \sqrt{3x + 1} = 11$$

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44

Solve each equation.

$$6 + \sqrt{4x + 8} = 9$$

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45

Solve each equation.

$$\sqrt{x - 4} = \sqrt{2x - 13}$$

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47

Solve each equation. Check your solutions.

$$\log_{10} z + \log_{10} (z + 9) = 1$$

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Solve each equation. Check your solutions.

$$\log_3 (a^2 + 3) + \log_3 3 = 3$$

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Solve each equation. Check your solutions.

$$\log_2 (15b - 15) - \log_2 (-b^2 + 1) = 1$$



50

Solve each equation. Check your solutions.

$$\log_4 (2y + 2) - \log_4 (y - 2) = 1$$

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51

In 2007, the population of the state of Georgia was 9.36 million people. In 2000, it was 8.18 million.

a. Determine the value of k , Georgia's relative rate of growth.

b. When will Georgia's population reach 12 million people?



52

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A type of bacteria is growing exponentially according to the model $y = 1000e^{kt}$, where t is the time in minutes.

A. If there are 1000 cells initially and 1650 cells after 40 minutes, find the value of k for the bacteria.

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A type of bacteria is growing exponentially according to the model $y = 1000e^{kt}$, where t is the time in minutes.

- B.** Suppose a second type of bacteria is growing exponentially according to the model $y = 50e^{0.0432t}$. Determine how long it will be before the number of cells of this bacteria exceed the number of cells in the other bacteria.



54

Simplify each expression.

$$\frac{3ac^3f^3}{8a^2bcf^4} \cdot \frac{12ab^2c}{18ab^3c^2f}$$

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Simplify each expression.

$$\frac{64a^2b^5}{35b^2c^3f^4} \div \frac{12a^4b^3c}{70abcf^2}$$

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56

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Simplify each expression.

$$\frac{y^2 + 8y + 15}{y - 6} \cdot \frac{y^2 - 9y + 18}{y^2 - 9}$$

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57

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Simplify each expression.

$$\frac{c^2 - 6c - 16}{c^2 - d^2} \div \frac{c^2 - 8c}{c + d}$$

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58

Simplify each expression.

$$\frac{x^2 + 9x + 20}{8x + 16} \cdot \frac{4x^2 + 16x + 16}{x^2 - 25}$$


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59

Mohammed sees a new band at a concert. He e-mails a link for the band's Web site to five of his friends. They each forward the link to five of their friends. The link is forwarded again following the same pattern. How many people will receive the link on the eighth round of e-mails? 

If the pattern continues, what is the total number of e-mails sent in the eight rounds? 

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Find the sum of each geometric series.

$$a_1 = 2, n = 10, r = 3$$

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61

Find the sum of each geometric series.

$$a_1 = 2000, a_n = 125, r = \frac{1}{2}$$

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62

A certain water filtration system can remove 70% of the contaminants each time a sample of water is passed through it. If the same water is passed through the system four times, what percent of the original contaminants will be removed from the water sample?

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63

Find the sum of each geometric series.

$$a_1 = 36, r = \frac{1}{3}, n = 8$$

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Find the sum of each geometric series.

$$a_1 = 16, r = \frac{1}{2}, n = 9$$

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