

شكراً لتحميلك هذا الملف من موقع المناهج الإماراتية



أوراق عمل لدروس الوحدة السادسة

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تاريخ نشر الملف على موقع المناهج: 2023-10-04 15:07:56 | اسم المدرس: محمد زياد

التواصل الاجتماعي بحسب الصف الحادي عشر المتقدم



روابط مواد الصف الحادي عشر المتقدم على تلغرام

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المزيد من الملفات بحسب الصف الحادي عشر المتقدم والمادة رياضيات في الفصل الأول

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المزيد من الملفات بحسب الصف الحادي عشر المتقدم والمادة رياضيات في الفصل الأول

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Worksheet



Math Island
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1) Convert the following to exponential form

a) $\log_5 625 = 4$

b) $\log_4 8 = \frac{3}{2}$

2) Convert the following to Logarithmic form

a) $5^{-3} = \frac{1}{125}$

b) $2^7 = 128$

3) For the function $f(x) = -0.5 \log_2(x + 3) - 4$

a) Sketch the graph of the function

b) Find the domain and the range

4) Suppose the value of a piece of furniture is decreasing exponentially according to the equation $V = 5400(0.81)^t$, Where t is the number of months and V is final value . Write an equation that finds the time needed for it to be worth a specific value V.

5) For the function $f(x) = \log_{\frac{1}{9}} x$, find

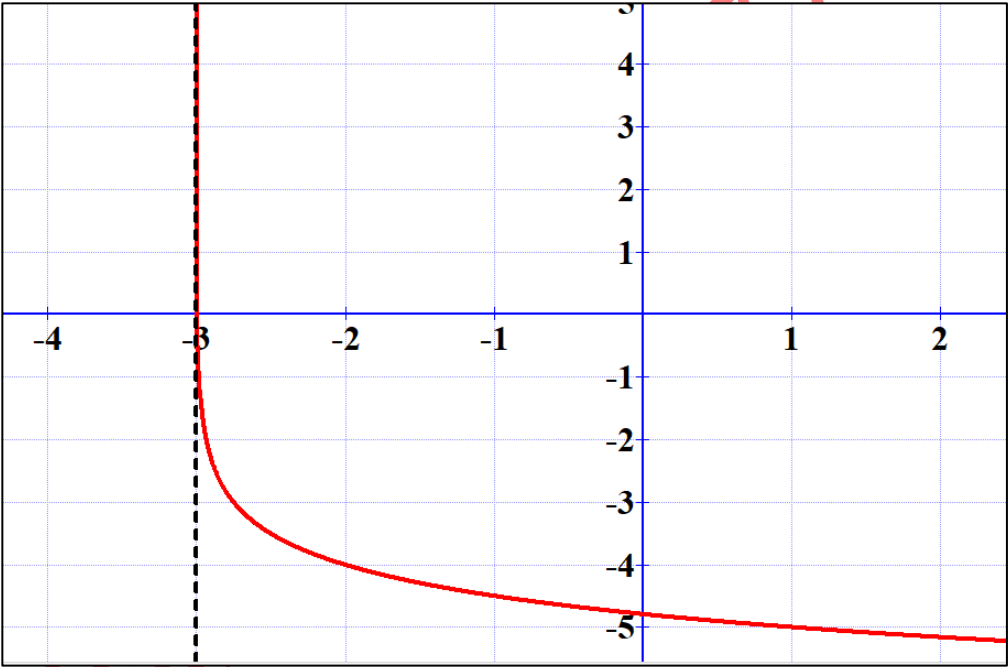
a) Domain

b) Range

c) x-intercept

d) End behavior

Answers

Q		Answer
1	a	$5^4 = 625$
	b	$(4)^{\frac{3}{2}} = 8$
2	a	$\log_5\left(\frac{1}{125}\right) = -3$
	b	$\log_2 128 = 7$
3	a	
	b	Domain: $(-3, \infty)$, Range: $(-\infty, \infty)$
4		$t = \log_{0.81}\left(\frac{V}{5400}\right)$
5		Domain: $(0, \infty)$
		Range: $(-\infty, \infty)$
		1
		$x \rightarrow 0 \quad f(x) \rightarrow \infty$ $x \rightarrow \infty \quad f(x) \rightarrow -\infty$

Worksheet



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1) Using the following information

$$\log_3 4 = 1.262, \log_3 5 = 1.465, \log_3 7 = 1.771$$

Find:

a) $\log_3 60$

b) $\log_3 1.4$

c) $\log_3 \frac{28}{5}$

d) $\log_3 175$

2) Solve the following equations:

a) $\log_5 x + \log_5(x + 3) = \log_5(20 - 5x)$

b) $\log_5(x^2 - 2x) = \log_5(5x - 12)$

c) $\log_4(6x) - \log_4(4 - x) = \log_4(3)$

d) $\log_2(x + 1) - \log_2(2 - x) = 3$

e) $\log_4(-x) + \log_4(6 - x) = 2$

f) $\log_{10}(x) = 2 - \log_{10}(x - 21)$

g) $\log_9(x - 5) - \log_9(x + 3) = 1$

h) $\log_{10}(3x - 2) = 2$

i) $2 \log_{10}(x) = \log_{10}(2) + \log_{10}(3x - 4)$

Answers

Q	Answer	
1	a	3.727
	b	0.306
	c	1.568
	d	4.701
3	a	$x = 2$ but $x = -10$ (<i>Extraneous</i>)
	b	$x = 2$, $x = 4$
	c	$x = \frac{4}{3}$
	d	$x = \frac{5}{3}$
	e	$x = -2$ but $x = 8$ (<i>Extraneous</i>)
	f	$x = 25$ but $x = -4$ (<i>Extraneous</i>)
	g	No acceptable solutions but $x = -4$ (<i>Extraneous</i>)
	h	$x = 34$
	i	$x = 2$, $x = 4$



1) Solve the following equations:

a) $3^{2x} = 16$

b) $5^{x+3} = 24$

c) $6^{2x+1} = 10^{5x}$

d) $7^{3-x} \leq 2^{5x}$

e) $8^{3x+1} - 27 > 10$

f) $\log_5(x) - \log_2(x^2) = 3$

2) In chemistry, pH is a scale used to specify the acidity or basicity of an aqueous solution. If $\text{pH} = -\log[H^+]$, where $[H^+]$ is the equilibrium molar concentration (mol/L) of H^+ in the solution. The pH of the solution is 4. How much the hydrogen ion concentration of solution

Answers

Q	Answer	
1	a	1.2619
	b	-1.0254
	c	0.2260
	d	$x \geq 1.07873$
	e	$x > 0.2455$
	f	0.2658
2	10^{-4}	

Worksheet



Math garden
Telegram page

1) Solve the following equations using natural logarithm when needed:

a) $e^{2x+1} = 10$

b) $5e^{4-3x} - 9 > 31$

c) $e^{x^2+1} = e^{4x-2}$

d) $\ln(4) + \ln(3x + 1) = 5$

e) $3 - 4e^{x-1} < -9$

f) $\ln(2x + 5) - \ln(x) = 1$

g) $\ln(2x + 5) + \ln(x) = \ln(3x + 4)$

2) Write using single logarithm:

a) $\frac{1}{5}\ln(x) - 2\ln(x - 4)$

b) $\ln(3x) + 2\ln(4x)$

c) $2\ln(4x) + 3\ln(x + 1) - 5$

3) Using the facts that $\ln(4) = 1.386$, $\ln(5) = 1.609$, find $\ln\left(\frac{400}{e^3}\right)$

4) 12000\$ were invested in a bank to have an interest of rate 2% annually compounded continuously, How much time needed for the amount to be 15000\$

Answers

Q	Answer	
1	a	0.6513
	b	$x < 0.6402$
	c	$x_1 = 1, x_2 = 3$
	d	12.0344
	e	$x > 2.0986$
	f	6.9611
	g	$x=1$, but $x=-2$ extraneous solution
2	a	$\ln\left[\frac{\sqrt[5]{x}}{(x-4)^2}\right]$
	b	$\ln(48x^3)$
	c	$\ln\left[\frac{16x^2(x+1)^3}{e^5}\right]$
3	2.99	
4	11.1572 year	

Worksheet



Math garden
Telegram page

- 1) A video posted on YouTube initially had 80 views as soon as it was posted. The total number of views to date has been increasing exponentially according to the exponential growth function $y = 80e^{0.2t}$, where t represents time measured in days since the video was posted. How many days does it take until 2500 people have viewed this video?
- 2) In the year 2010, Barangay Santolan has a population of 3,200. Its rate increases 1.05% every year. What is the population of the barangay after 3 years?
- 3) The half-life of a radioactive substance is 3,000 years, with an initial amount of substance of 500 grams.
 - a) Give an exponential model of the amount remaining after t years
 - b) What amount of substance remains after 2,000 years?
- 4) A car bought for 90,000 AED depreciates by 20% per year. After how many years can one buy the car at about half of its original price?
- 5) Suppose that a population of a colony of bacteria increases exponentially, at the start of the experiment, there are 1000 bacteria. One hour later, the population has increased to 1200 bacteria. How long will it take for the population to reach 5000 bacteria?
- 6) Michael owns 15,000\$ and he wants to invest his money into an account that will double his money. He is thinking of a financial institution that can make his dream come true. He is considering to invest his money in a lending company which offers a 15% annual rate interest compounded continuously. For how long, will he invest his money in that company to earn at least twice as much as he has now?

Answers

Q	Answer
1	17.21 days
2	3302 persons
3	$y(t) = 500e^{-0.000231t}$
	315.0112 g
4	3.466 year
5	8.8285 hour
6	4.621 year