need 18

Striving to provide
a premier online education experience ™

Note: You will only be allowed to submit this test one time. Your score will be averaged in your overall course grade and you will not be able to submit this test again.

MA170G.04
1 of 25
A certain radioactive isotope decays at a rate of 0.25% annually. Determine the half-life of this isotope, to the nearest year.

- ○ 120 years
- ○ 277 years
- ○ 200 years
- ○ 3 years

seems not right.

2 of 25
Classify the function as a linear, quadratic, or exponential.

f(x) = -5x - 4

- ○ Exponential
- ☒ Linear
- ○ Quadratic

3 of 25
Classify the function as a linear, quadratic, or exponential.

f(x) = (x - 5)(x + 4)

- ○ Exponential
- ☒ Linear
- ○ Quadratic

4 of 25
Evaluate the expression.

$\log_{3.3} 144$

- ☒ 4.1626
- ○ 2.1584
- ○ 43.6364
- ○ 0.2402

5 of 25
Evaluate the expression.

$\log_{15} 97.67$

- ☒ 1.6918

- 0.5911
- 1.9898
- 6.5113

6 of 25

Express the following in terms of u and v, where u = ln x and v = ln y. For example, $\ln x^3 = 3(\ln x) = 3u$.

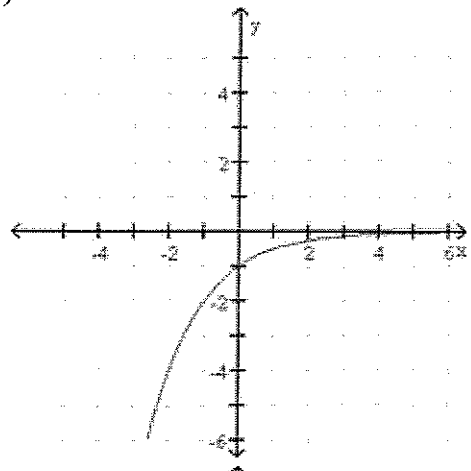
$\ln (3x^2y^3)$

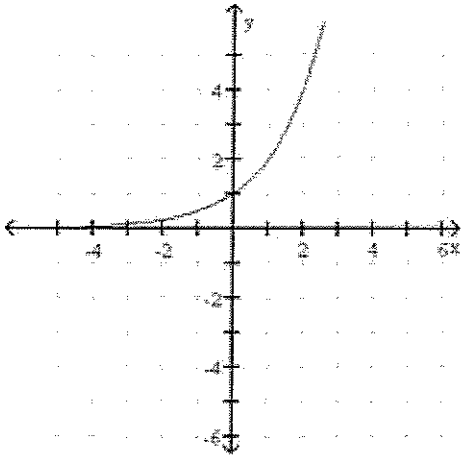
- ln 3 + 2 u - 3 v
- 3 u + 2 v + ln 5
- ln 3 + 2 u + 3 v
- ln 5 + 3 u - 2 v

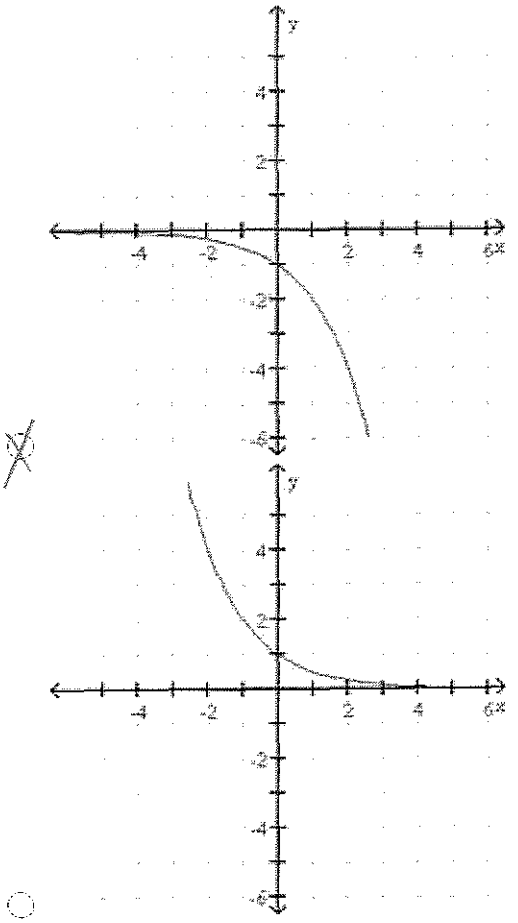
7 of 25

Graph the function.

$f(x) = 2^{-x}$

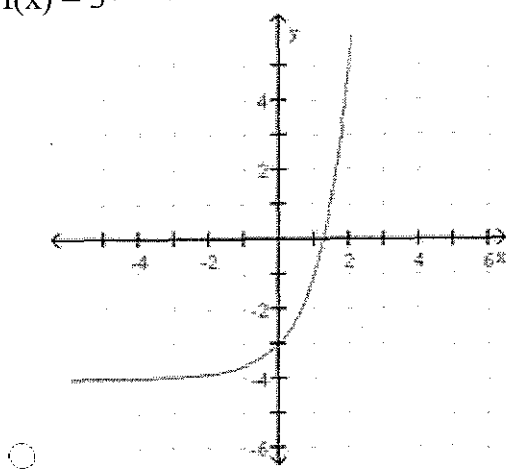


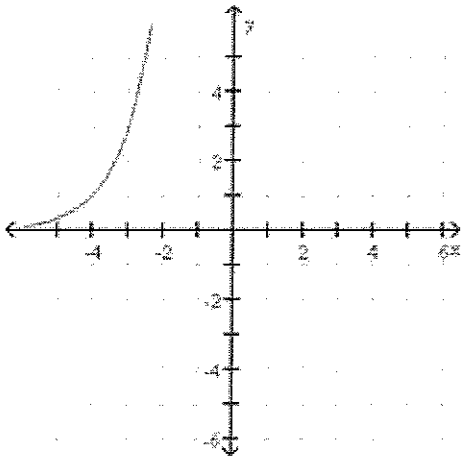


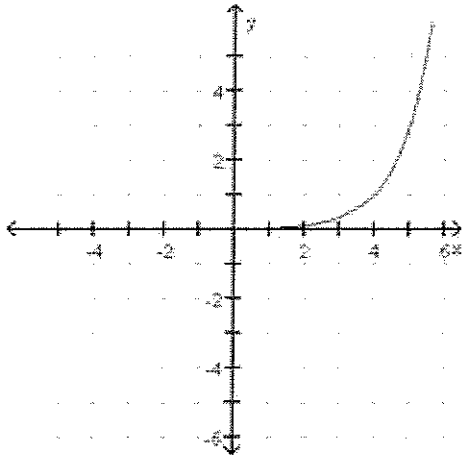


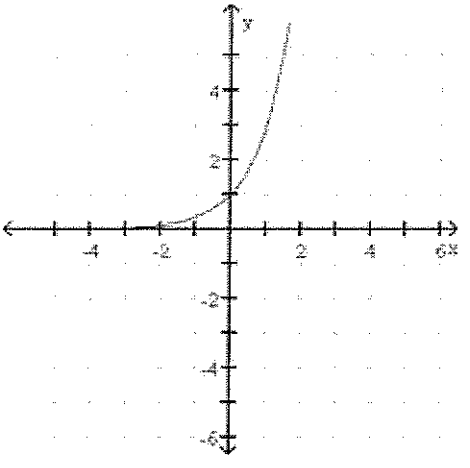
8 of 25
Graph the function.

$f(x) = 3^{(x - 4)}$









9 of 25

If an earthquake measured 5.9 on the Richter scale, what was the intensity of the earthquake? Use the formula $M = \log (A/A_o)$.

- 630,957
- 79,433
- 365
- 794,328

10 of 25

In the formula $A = I^{ekt}$, A is the amount of radioactive material remaining from an initial amount

I at a given time t and k is a negative constant determined by the nature of the material. An artifact is discovered at a certain site. If it has 53% of the carbon-14 it originally contained, what is the approximate age of the artifact? (carbon-14 decays at the rate of 0.0125% annually.) (Round to the nearest year.)

- 4240 yr
- 5079 yr
- 2206 yr
- 3760 yr

11 of 25

Solve the equation for s.

$3 - r = \log(7s + 8)$

- $\dfrac{10^3 - r - 8}{7}$
- $\dfrac{7}{11 + r}$
- $\dfrac{11 + r}{7}$
- $10^{11} + r$

12 of 25

Solve the equation for s.

$\log(9s - 7) = r - 2$

- $10^9 + r$
- $\dfrac{10r - 2 + 7}{9}$
- $\dfrac{9}{9 + r}$
- $\dfrac{9 + r}{9}$

13 of 25

Solve the equation.

$\log_2 x = 3$

- 8
- 6
- 100
- 9

14 of 25

Suppose the amount of a radioactive element remaining in a sample of 100 milligrams after x years can be described by $A(x) = 100e^{-0.01657x}$. How much is remaining after 257 years? Round the answer to the nearest hundredth of a milligram.

- 425.85 milligrams
- 7070.31 milligrams
- 1.41 milligrams
- 0.01 milligrams

15 of 25

The amount of particulate matter left in solution during a filtering process is given by the equation $P(x) = 800(2)^{-0.4n}$, where n is the number of filtering steps. Find the amounts left for n = 0 and n = 5. (Round to the nearest whole number.)

- 800, 25
- 800, 3200
- 800, 200
- 1600, 200

16 of 25

The population growth of an animal species is described by $F(t) = 500 + 90 \log_3 (2t + 1)$ where t is measured in months. Find the population of this species in an area 40 month(s) after the species is introduced.

- 860
- 3915
- 7790
- 440

17 of 25

Use a calculator to evaluate the logarithm.

log 0.0837

- -1.0721
- -1.0825
- -1.0773
- -2.4805

18 of 25

Use a graphing calculator to predict about how many books will have been read in the eighth grade.

Grade	Number of Books Read
2	9
3	28
4	65
5	123

- 1000
- 2000
- 3000
- 500

19 of 25

Use the formula $P = I^{ekt}$. A bacterial culture has an initial population of 10,000. If its population declines to 7000 in 2 hours, what will it be at the end of 4 hours?

- 9031
- 1500
- 4900
- 2450

20 of 25

Without graphing, describe the shape of the graph of the function and complete the ordered pairs (0,) and (1,)

$f(x) = 7^{(0.6)x}$

- The graph lies below the x-axis, rises from left to right, with the negative x-axis as a horizontal asymptote; (0, 1) and (1, 7^6).
- The graph lies above the x-axis, rises from left to right, with the negative x-axis as a horizontal asymptote; (0, 1) and (1, $7 \cdot 6$).
- The graph lies below the x-axis, falls from right to left, with the negative x-axis as a horizontal asymptote; (0, 7) and (1, 7^6)
- The graph lies above the x-axis, falls from left to right, with the negative x-axis as a horizontal asymptote; (0, 7) and (1, $7 \cdot 6$).

21 of 25

Write in logarithmic form.

$7^2 = 49$

- $7 = \log_2 49$
- $2 = \log_7 49$
- $49 = \log_7 2$
- $2 = \log_{49} 7$

22 of 25

Write the expression as a sum and/or a difference of logarithms with all variables to the first degree.

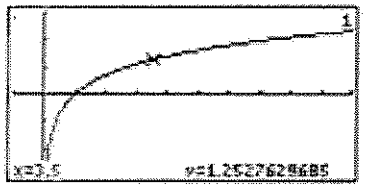
$\ln \sqrt{(5t^{16}v^2)}$

- 1/2ln 5 + 4 ln t + ln v
- 1/2ln 80t + 2 ln v
- 1/2ln 5 + 4 ln t + 2 ln v
- 1/2 ln 5 + 16 ln t + ln v

23 of 25

Write the logarithmic and exponential equations associated with the display.

$g(x) = \ln x$

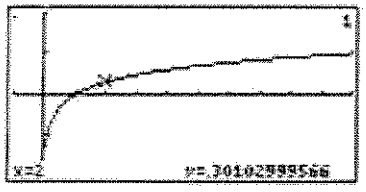


- ln 3.5 = .54406804435; $e^{.54406804435} = 3.5$
- ln .54406804435 = 3.5; $e^{3.5} = .54406804435$
- ln 3.5 = 1.2527629685; $e^{1.2527629685} = 3.5$
- ln 1.2527629685 = 3.5; $e^{3.5} = 1.2527629685$

24 of 25

Write the logarithmic and exponential equations associated with the display.

$f(x) = \log x$

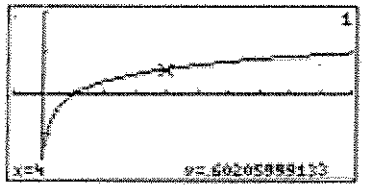


- log .301029995664 = 2; $10^2 = .301029995664$
- log .69314718056 = 2; $10^2 = .69314718056$
- log 2 = .301029995664; $10^{.301029995664} = 2$
- log 2 = .69314718056; $10^{.69314718056} = 2$

25 of 25

Write the logarithmic and exponential equations associated with the display.

$f(x) = \log x$



- ◯ $\log 4 = .602059991328$; $10^{.602059991328} = 4$
- ◯ $\log .602059991328 = 4$; $10^{4} = .602059991328$
- ◯ $\log 1.38629436112 = 4$; $10^{4} = 1.38629436112$
- ◯ $\log 4 = 1.38629436112$; $10^{1.38629436112} = 4$

Submit