

Chapter 7&8 TEST – Part I

CALCULATOR Part

Multiple Choice

Identify the choice that best completes the statement or answers the question.

- A 1. Evaluate the expression $6\log_8 25 - (\log_8 3 + \log_8 8)$ to the nearest hundredth.
- A. 7.76 C. 10.82
 B. 9.76 D. 7.01
- C 2. Another way of writing $3^4 = 81$ is
- A. $\log_3 4 = 81$ B. $\log_{81} 3 = .4$
 C. $\log_3 81 = 4$ D. $\log_4 81 = 3$
- B 3. Which of the following represents $a = \log_7 343$?
- A. $7^{343} = a$ C. $a^7 = 343$
 B. $7^a = 343$ D. $a^{343} = 7$
- A 4. Which of the following is equivalent to the expression $\log_4 s + 7\log_4 v + \log_4 z$?
- A. $\log_4 sv^7z$ C. $\log_4 7svz$
 B. $7\log_4 svz$ D. $\log_4 sz + \log_{28} v$
- B 5. If $\log 3 = s$, $\log 5 = v$, and $\log 7 = z$, an algebraic expression in terms of s , v , and z for $\log \frac{5}{441}$ is
- A. $v - 2s + 2z$ C. $v - 2(s - z)$
 B. $v - 2(s + z)$ D. $v - 2s + z$
- A 6. Which if the following is equivalent to the expression $\log_4 sw^{10}y$?
- A. $\log_4 s + 10\log_4 w + \log_4 y$ C. $\log_4 s + \log_4 w + 10\log_4 y$
 B. $10\log_4 s - 10\log_4 w + \log_4 y$ D. $10\log_4 s + \log_4 w + \log_4 y$

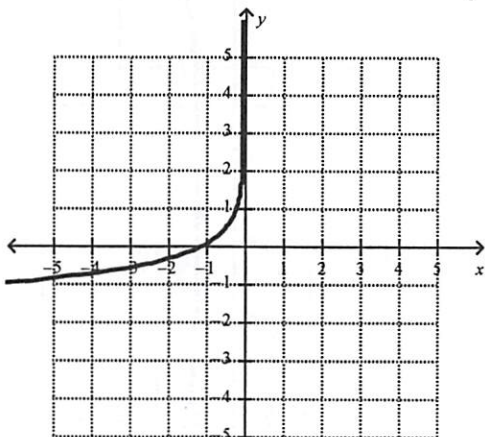
Chapter 7&8 TEST – Part I
NON CALCULATOR Part

Multiple Choice

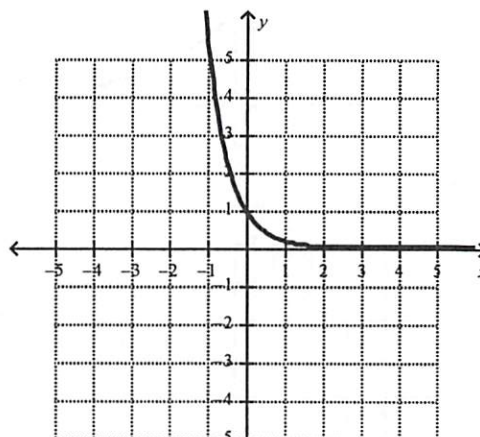
Identify the choice that best completes the statement or answers the question.

D 7. Which graph represents the inverse of $y = \left(\frac{1}{6}\right)^x$?

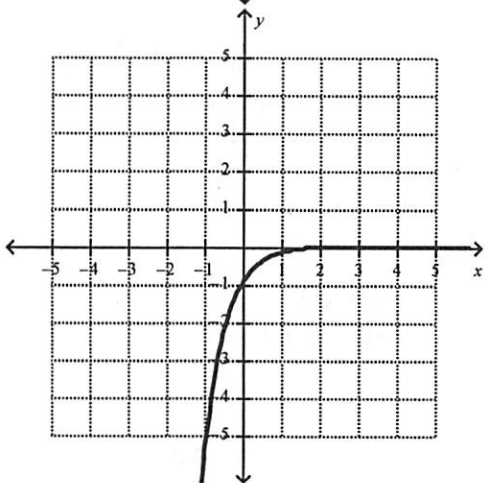
A.



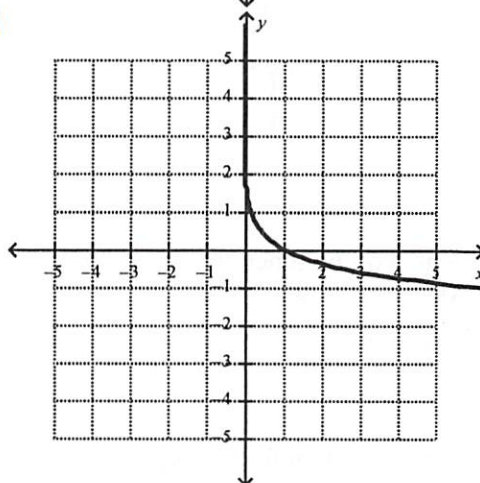
C.



B.



D.



A 8. The range of the function $f(x) = -8\log_5[10(x+8)] + 9$ is

A. $\{y \mid y \in \mathbb{R}\}$

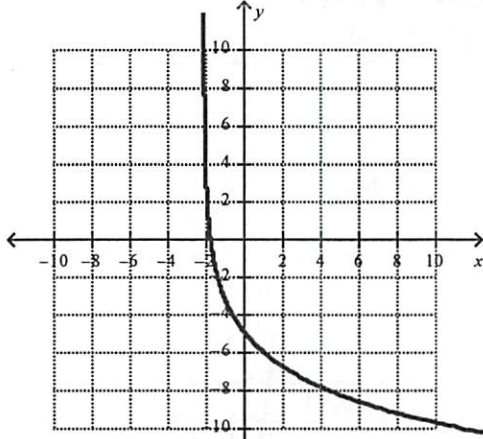
C. $\{y \mid y \geq 9, y \in \mathbb{R}\}$

B. $\{y \mid y \geq 8, y \in \mathbb{R}\}$

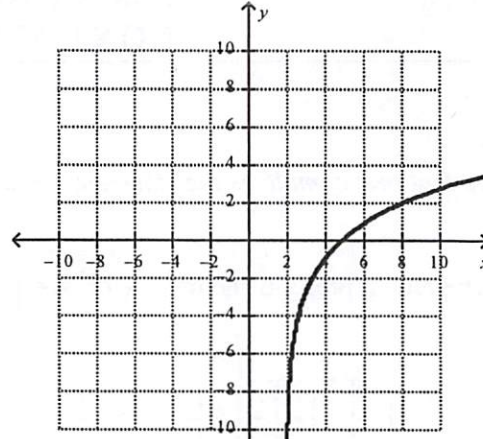
D. $\{y \mid y \leq 9, y \in \mathbb{R}\}$

D 9. Which graph represents the function $y = -3\log_3[(x-2)] - 3$?

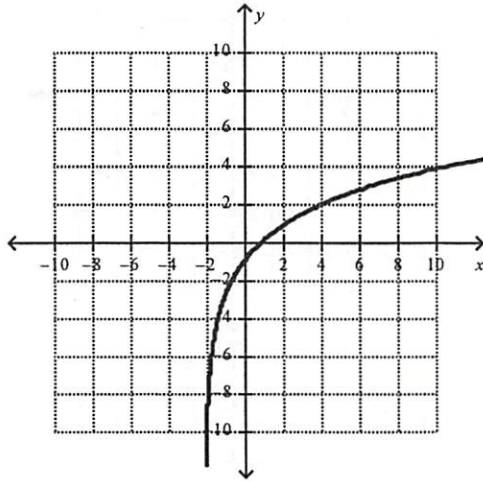
A.



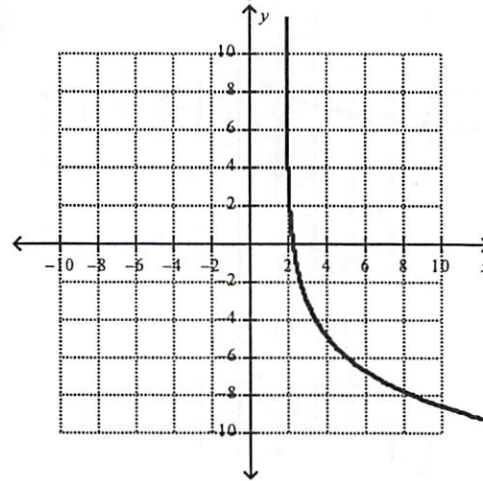
C.



B.



D.



D 10. The domain of the function $f(x) = 8\log_6[8(x+8)] + 7$ is

A. $\{x|x < 7, x \in \mathbb{R}\}$

C. $\{x|x > 7, x \in \mathbb{R}\}$

B. $\{x|x < -8, x \in \mathbb{R}\}$

D. $\{x|x > -8, x \in \mathbb{R}\}$

D 11. What is the equation for the asymptote of the function $f(x) = -\log_7[-5(x+2)] - 3$?

A. $x = 2$

C. $x = -5$

B. $x = -3$

D. $x = -2$

C 12. Which choice best describes the function $y = 6^x$?

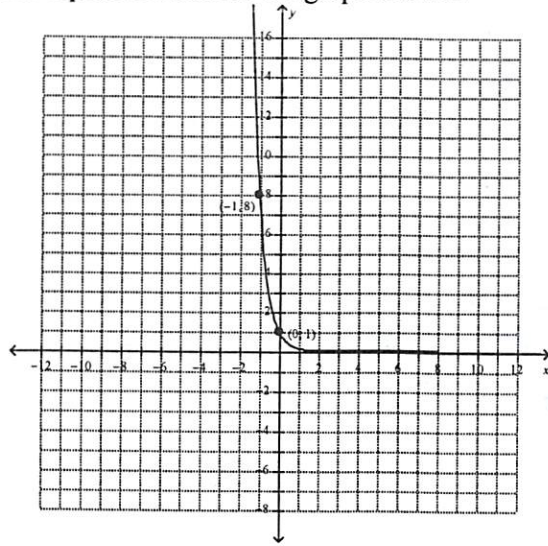
A both increasing and decreasing

C increasing

B decreasing

D neither increasing nor decreasing

A 13. Which exponential equation matches the graph shown?



A $y = \left(\frac{1}{8}\right)^x$

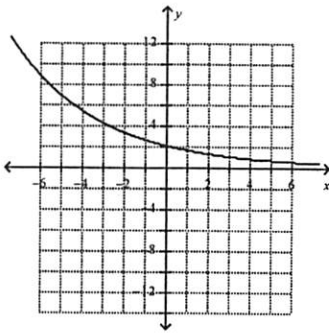
B $y = 8^x$

C $y = -\left(\frac{1}{8}\right)^x$

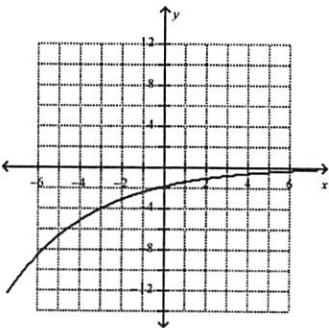
D $y = -8^x$

A 14. Which graph represents the function $y = 2\left(\frac{7}{9}\right)^x$?

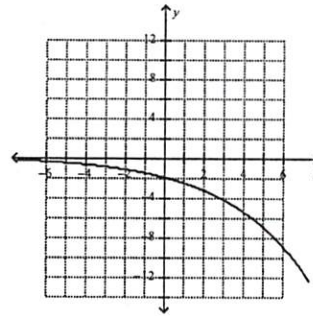
A



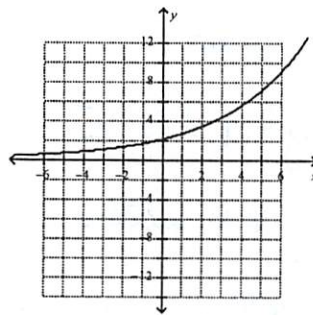
B



C



D



Name: _____

Short Answer

15. Given $\log_2 7 \approx 2.8074$, find the value of $\log_2 14$.

$$\begin{aligned}\log_2 14 &= \log_2 (2 \times 7) \\ &= \log_2 2 + \log_2 7 \\ &\approx 1 + 2.8074 \\ &= \boxed{3.8074}\end{aligned}$$

1.5

16. Evaluate $\log_2 64 + \log_3 27 \times \log_2 \frac{1}{16} = 6 + 3 \times (-4)$

$$\begin{aligned}&= 6 - 12 \\ &= \boxed{-6}\end{aligned}$$

2

17. Given $\log 7 \approx 0.8451$ and $\log 2 \approx 0.3010$, find the value of $\log 28$.

$$\begin{aligned}\log 28 &= \log (7 \times 4) \\ &= \log 7 + \log 2^2 \\ &= \log 7 + 2\log 2 \\ &\approx 0.8451 + 0.6020 \\ &= \boxed{1.4471}\end{aligned}$$

1.5

18. For each function, identify the
- base of the exponential function
 - domain and range
 - the number of x -intercepts and the value of the y -intercept.
 - is it increasing/decreasing?
 - equation of the asymptote

a) $f(x) = \left(\frac{1}{3}\right)^x$

i) base: $\frac{1}{3}$

ii) $D = \mathbb{R}$ $R = (0, +\infty)$

3.5
iii) no x -intercept y -intercept: 1

iv) decreasing

v) horiz. asymptote: $y = 0$

b) $g(x) = -8^{x+1} + 4$

i) base: 8

ii) $D = \mathbb{R}$ $R = (-\infty; 4)$

3.5
iii) 1 x -intercept y -intercept: -4

iv) decreasing

v) horizontal asymptote: $y = 4$