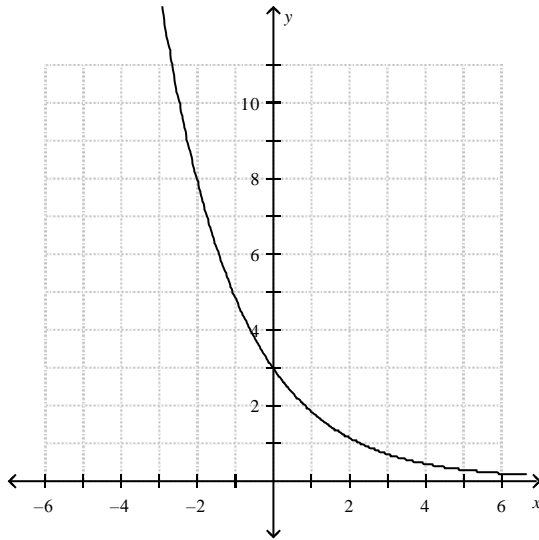


Midterm Review (Chapters 5-6)

Multiple Choice

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

- ____ 1. Which exponential function is shown in the graph below?



- a. $y = e^{0.5x}$ c. $y = e^{-0.5x}$
b. $y = 3e^{-0.5x}$ d. $y = 3e^{0.5x}$

Short Answer

2. Find the indicated real n th root(s) of a .
 $n = 5, a = -1024$

Use the properties of rational exponents to simplify the expression.

3. $(5^6)^{1/9}$

4. $\left(\frac{16^7}{28^7}\right)^{-1/7}$

Write the expression in simplest form.

5. $\frac{\sqrt[4]{4}}{\sqrt[4]{9}}$

6. $\frac{8}{3 + \sqrt{6}}$

Simplify the expression.

7. $10(5^{1/3}) - 2(5^{1/3})$

8. $3(7^{1/4}) - 8(112^{1/4})$

9. $\sqrt[6]{64x^{24}q^{12}}$

Write the expression in simplest form. Assume all variables are positive.

10. $\sqrt[6]{64m^{21}n^{18}p^{25}}$

11. $\frac{\sqrt{v^3}}{\sqrt[2]{v^6}}$

Write a rule for g described by the transformations of the graph of f .

12. Let g be a reflection in the x -axis, followed by a translation 5 units up of the graph of $f(x) = 2^3\sqrt{x-3}$.

13. Let g be a translation 1 unit down and 4 units left, followed by a reflection in the x -axis of the graph of $f(x) = -\frac{4}{5}\sqrt[4]{x} - \frac{6}{5}$

Solve the equation. Check your solution(s).

14. $\sqrt{5x-9} = 9$

15. $(x+33)^{1/2} = 2x$

Find the inverse of the function.

16. $f(x) = -\frac{5}{6}x - \frac{1}{6}$

Determine whether the inverse of f is a function. Then find the inverse.

17. $f(x) = 4x^3 - 7$

Rewrite the equation in logarithmic form.

18. $9^{-2} = \frac{1}{81}$

Evaluate the logarithm.

19. $\log_{1/3} 9$

20. $\log_{64} 8$

21. Simplify $10^{\log 14}$.

Find the inverse of the function.

22. $y = \ln(x+9)$

23. Use $\log_6 7 \approx 1.086$ and $\log_6 4 \approx 0.774$ to evaluate $\log_6 \frac{7}{4}$.

Expand the logarithmic expression.

24. $\log_3 \frac{x^4}{7y}$

25. $\log_7 \sqrt[4]{3x}$

Condense the logarithmic expression.

26. $\ln 6 + 7 \ln 2 - \ln 4$

27. $6 \log 2 - 5 \log x$

28. Use the change-of-base formula to evaluate $\log_4 11$.

Solve the equation.

29. $8^{3x} = \left(\frac{1}{64}\right)^{x+5}$

30. $\log_5(x-4) = 4$

31. $\log_2 2x + \log_2(x-4) = 6$

32. $\log_7(-x+8) = \log_7(-3x-4)$

33. $f(x) = 4^x$; reflection in the x -axis followed by a translation 5 units right

34. $f(x) = \log_{1/6} x$; translation 6 units up followed by a horizontal shrink by a factor of $\frac{1}{8}$

35. Write an exponential function $y = ab^x$ whose graph passes through (1, 3) and (2, 15)