

# 11.2

## Exponents Review & Solving by Changing Base (2023-2024)

SCORE:

/

Name \_\_\_\_\_ Date \_\_\_\_\_ Period \_\_\_\_\_

Simplify without using a calculator. Show all work.

1.  $3^2 =$

2.  $5^{-2} =$

3.  $\frac{1}{6^{-3}} =$

4.  $\left(\frac{1}{5}\right)^3 =$

5.  $\left(\frac{1}{7}\right)^{-2} =$

6.  $3x^2 =$

7.  $(3x)^2 =$

8.  $x^4x^2 =$

9.  $\frac{x^5}{x^3} =$

10.  $64^{\frac{5}{3}} =$

11.  $\frac{1}{4^{-\frac{3}{2}}} =$

12.  $(25)^{\frac{3}{2}} =$

13.  $(4x^2)(-2x^5)$

14.  $\frac{-20x^8}{4x^3}$

15.  $\left(\frac{x^4}{x^3}\right)^2$

16.  $7^{\frac{1}{2}}$

17.  $8^{\frac{2}{3}}$

18.  $27^{\frac{1}{3}}$

Solve each equation. Show your work!!

$$19. 7^2 = 7^x$$

$$20. 4^{-2x-2} = 4^{3x}$$

$$21. 3^{-2x} = 27$$

$$22. 5^{2x} = \frac{1}{25}$$

$$23. \left(\frac{1}{4}\right)^{-2x-1} = 16$$

$$24. 81^{-x+3} = \frac{1}{3}$$

$$25. 8^n = \frac{1}{2}$$

$$26. 2^{-x-3} = 2^{x-2}$$

$$27. 81^{3x} = \left(\frac{1}{9}\right)^{2-2x}$$

$$28. 4^{(1-2x)} = 2$$

$$29. 8^{(6+3x)} = 4$$

$$30. 9^x = 3^{x-1}$$

$$31. \left(\frac{1}{2}\right)^{3-x} = 8^3$$

$$32. 5^x = 25^{3-2x}$$

$$33. \left(\frac{1}{9}\right)^x = 27$$

$$34. 16^{x+1} = 4^3$$

$$35. \frac{1}{5^x} = 25$$