

## Practice Test for Final-

### Unit 1- Modeling with Expressions and Equations

Questions: 3, 4, 5, 6, 7, 9, 11, 13

### Unit 2- Functions

Questions: 1, 2, 3, 5, 6, 13, 14

### Unit 3- Polynomials

Questions: 1, 3, 4, 5, 6, 7, 8, 9, 10

### Unit 4- Complex Numbers and Quadratic Equations

Questions: 7, 8, 9, 10, 11, 12

### Unit 5- Radical Functions

Questions: 1, 2, 3, 4, 5

### Unit 6- Polynomial Functions

Questions: 2, 4, 5, 6, 7, 9, 11

### Unit 7- Rational Functions

Questions: 3, 4, 6, 7, 8, 9

## Practice Test for Exponential and Logarithmic Functions Unit

### Learning Objectives:

- A. Simplify rational exponents.
- B. Rewrite a root as a rational exponent.
- C. Use rational exponents to rewrite an expression in simplest radical form.
- D. Simplify real number exponents
- E. Solve an equation with rational exponents.
- F. Write a function to model an exponential situation.
- G. Use an exponential model to answer questions about a real life situation.
- H. Identify the major features of an exponential graph: y-intercept, asymptote, domain and range.
- I. Graph an exponential growth or decay function.
- J. Use transformations to sketch the graph of an exponential function.
- K. Identify how the base of an exponential function affects the shape of the graph.
- L. Transform a logarithm to an exponent and an exponent to a logarithm.
- M. Simplify a logarithm.
- N. Solve an exponential equation by converting it into a logarithm.
- O. Solve a logarithmic equation by converting it into an exponent.
- P. Identify the major features of an logarithmic graph: x-intercept, asymptote, domain and range.
- Q. Graph a logarithmic function.
- R. Use the compound interest formula to answer questions about interest.
- S. Use the continuous growth or decay function to model a real life situation.

Question #	Learning Objective	Know It	Feel Unsure		Right	Wrong	Simple Mistake	Need to Study
1	A							
2	B							
3	C							
4	D							
5	E							
6	E							
7	F							
8	G							
9	H, I							

10	H, I							
11	J							
12	K							
13	L							
14	M							
15	N							
16	O							
17	P, Q							
18	R							
19	S							

- Simplify:  $32^{-\frac{4}{5}}$
- Rewrite as an exponent:  $\sqrt[4]{2x^6y^8}$
- Rewrite in simplest radical form:  $\sqrt[4]{27} \cdot \sqrt[3]{81}$
- Simplify:  $3^{3\pi-1} \cdot 3^{\pi+4}$
- Solve:  $x^{\frac{2}{5}} + 5 = 14$
- Solve:  $36^x = \frac{1}{\sqrt{6}}$
- A mouse population is 10,000. It is decreasing at a rate of 20% per year. How many will be left in 2 years?
- In problem #7, when will the population be half the original size?
- Graph this function using two major points:  $f(x) = 5^x$  Identify the domain, range, y-intercept and asymptote.
- Graph this function using two major points:  $f(x) = \left(\frac{1}{3}\right)^x$  Identify the domain, range, y-intercept and asymptote.
- Given the function:  $f(x) = \left(\frac{1}{3}\right)^x$ , find  $f(x) = -\left(\frac{1}{3}\right)^{x-4} + 7$ .
- Explain how making  $b$  in  $f(x) = b^x$  larger or smaller changes the shape of the graph. What values cannot be  $b$ ?
- a) Convert to a logarithm:  $5^{\frac{1}{2}} = \sqrt{50}$ , b) Convert to an exponent:  $\log_{11} 1 = 0$
- Simplify  $\log_9 27$
- Solve:  $5^{x-1} = 100$
- Solve:  $\log_x 20 = 3$
- ~~Graph this function using two major points:  $f(x) = \log_x x$  Identify the domain, range, y-intercept and asymptote.~~
- I invest \$7500 into an account that gets 5% interest compounded monthly. When will I double my money?
- An adult takes 400 mg of ibuprofen. Each hour, the amount of ibuprofen in the person's system decreases by about 29%. How much ibuprofen is left after 6 hours?