

Exponent Function Problems

Math 130 *Kovitz*

1. Find

(a) $\exp_4 0$

(b) $\exp_4 1$

(c) $\exp_4 2$

(d) $\exp_4(-\frac{3}{2})$

2. Graph $f(x) = 3^x$ for $-3 \leq x \leq 2$. Label the points where $x = 0, 1, 1/2, 2, -1$; where $y = 1/9, 3, 1$.

3. Let $f(x) = \exp_9 x$

(a) Find $f(0), f(1), f(\frac{1}{2}), f(\frac{3}{2}), f(2), f(2.5), f(-2)$

(b) For which x is $f(x)$ equal to $81, 27, 9, 1, \sqrt{3}, \frac{1}{9}, 0, -9$?

(c) Looking at its rough graph, which of the four usual symmetries does it have?

4. Sketch the reflection across the y -axis of the graph of $y = \exp_2 x$.

Find the base a of the exponential function in the form $y = a^x$ of which this curve is the graph.

5. Solve for x :

(a)

$$8^x = 4^{x+1}.$$

(b)

$$64^{1-x} = \frac{1}{16^{2x}}.$$

(c)

$$32^x = .25^{2x-9}.$$

6. If $27^x = 9^{y-1}$, what is y in terms of x .