Northern Michigan University (Marquette Co, MI)

CS111-04-26W: College Algebra (Andrew A. Poe)
Quiz 7

Name: _____

Wednesday 24 March 2026 2:00 P.M. EDT

Time: 15 minutes

1. $f(x)$ has the following properties:

$f(0) = 7$

$f(x+1) = 5f(x)$, for all x.

What exponential function could $f(x)$ be?

$f(x) = a(b^x)$

$f(0) = a(b^0)$

$7 = a \cdot 1$

$7 = a$

$f(1) = 5 \cdot f(0)$

$a(b^1) = 5 \cdot 7$

$7b = 5 \cdot 7$

$b = 5$

$f(x) = 7(5^x)$

2. Rewrite the following function in the form $f(x) = a\,(b^x)$

$$f(x) = \frac{2^x}{3^{x+1}} = \frac{2^x}{3 \cdot 3^x} = \frac{1}{3} \cdot \frac{2^x}{3^x} = \frac{1}{3}\left(\frac{2}{3}\right)^x$$

3. Simply the following expression:

$$\frac{\log 1000000}{5^{\log_5 25}} = \frac{\log_{10} 10^6}{5^{\log_5 25}} = \frac{6}{25}$$

4. Compute the exact answer.

$$\log_7 56 - \log_7 8 = \log_7 \frac{56}{8} = \log_7 7 = \log_7 7^1 = 1$$