

# Standard 5 Practice Quiz A

MA 109

Print Your Name: Solutions ID: \_\_\_\_\_

Be sure that the ID number above is your correct 8-digit student ID number (without the leading 9). If this number is incorrect or not legible, it will take longer to process your score on this quiz.

This is practice for an in-class assessments on Standard 5. The only technology allowed during this quiz is a 4-function calculator. No notes or books may be used. This is an individual quiz, so any work done here must be entirely your own work.

**Show all of your work.** Your work will be graded on both accuracy and completeness, and partial credit is possible. You have 20 minutes to take this quiz.

Be sure to complete both the questions on this page and those on the back of this page.

1. Suppose  $f(x) = 2.14(0.54)^x$ .
  - a) What is the initial value of  $f(x)$ ?

Answer:

2.14

- b) What is the growth/decay rate of  $f(x)$ ? Write your answer as a percentage, but you do not have to simplify.

$$0.54 = 1 + \text{rate}$$

-1                      -1

$$-0.46 = \text{rate}$$

Answer:

-46%

2. Simplify each expression below. Write your answer in the answer box.

a)  $\log_4(4^{-3})$

Answer:

$-3$

b)  $\ln(\sqrt{e})$

$= \ln(e^{1/2})$   
 $= \log_e(e^{1/2})$

Answer:

$1/2$

c)  $\log_2(8)$

$= \log_2(2^3)$

Answer:

$3$

3. Suppose  $f(x) = 7 \log_2(5 - 3x) + 4$ . What is the domain of  $f(x)$ ? Write your answer using interval notation in the box below.

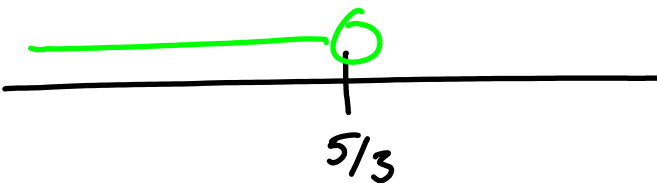
domain of log is where inside  $> 0$

$\frac{5 - 3x}{-5} > 0$

$\frac{-3x}{-3} > \frac{-5}{-3}$

$x < 5/3$

↓ divide by negative, so flip direction



Answer:

$(-\infty, 5/3)$