

## Logarithm Exercises

1. Answer the following questions without using a calculator. You should be able to explain why the answers are what they are.

(a) What is  $\log(100)$ ?

(b) What is  $\log(1000)$ ?

(c) What is  $10^4$ ?

(d) What is  $10^{-2}$ ?

(e) What is  $\log(1)$ ?

(f) What is  $\log(0)$ ?

(g) What is  $\log(0.1)$ ?

(h)  $\log(5000)$  is between what two integers?

2. Let the amount of air pollution in a room be given by

$$P(t) = 52000(0.8)^t . \quad (1)$$

At what time  $t$  is the amount of air pollution equal to 10,000?

3. Solve for  $z$ :

(a)  $10^z = 20 . \quad (2)$

(b)  $2^{3z} = 20 . \quad (3)$

(c)  $2^z = z + 4 . \quad (4)$