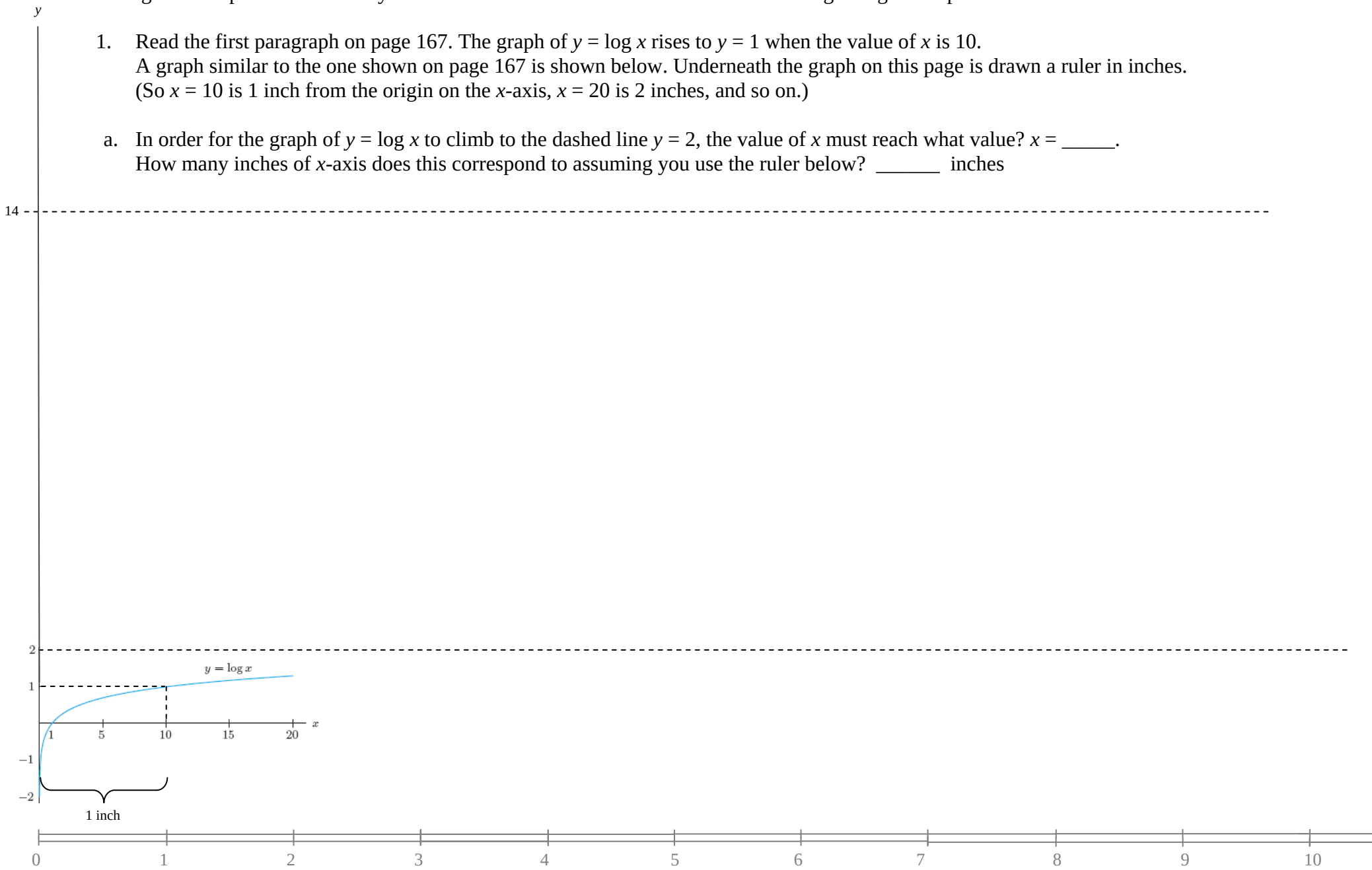
Reading Questions for Section 4.3 Name _____

Bring this completed sheet with you to class on the due date to be handed in at the beginning of the period.

1. Read the first paragraph on page 167. The graph of $y = \log x$ rises to $y = 1$ when the value of x is 10.
   A graph similar to the one shown on page 167 is shown below. Underneath the graph on this page is drawn a ruler in inches.
   (So $x = 10$ is 1 inch from the origin on the x-axis, $x = 20$ is 2 inches, and so on.)

   a. In order for the graph of $y = \log x$ to climb to the dashed line $y = 2$, the value of x must reach what value? $x =$ _____.
   How many inches of x-axis does this correspond to assuming you use the ruler below? _____ inches

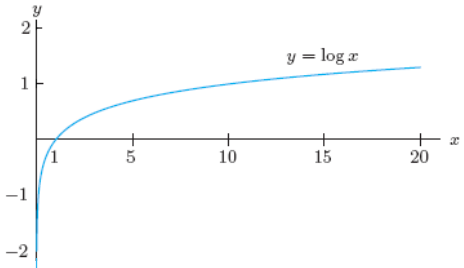


OVER PLEASE

1b. Complete the blanks. To rise to the line $y = 14$, we will need a lot more graph paper!
The value of x which corresponds to the value of $y = 14$ on the graph of $y = \log x$ would be $x =$ _____,
and that corresponds on the ruler to be at the mark of _____ inches.
(That's about the distance it would take to travel from the Sun to Pluto.)

2. The definition of a **vertical asymptote** is given in this section in the blue box on page 169.
Read that blue box, and the discussion preceding it. Then complete the boxes below.
What notation is used to indicate values of x which become **close to 0** from the *right*? $x \to$ ☐

What notation is used to indicate values of x which become **close to 0** from the *left*? $x \to$ ☐



3. The domain of the function $y = \log x$ is
o all real numbers
o all real numbers greater than or equal to 0
o all real numbers greater than 0
o all real numbers less than 0
o all real numbers less than some positive real number

4. The range of the function $y = \log x$ is
o all real numbers
o all real numbers greater than or equal to 0
o all real numbers greater than 0
o all real numbers less than 0
o all real numbers less than some positive real number

5. What value of x corresponds to the value of $y = -14$ on the graph of $y = \log x$?
o no such value exists
o 0.0000000000001
o 0.00000000000001
o 0.000000000000001
o none of these

6. Describe the relationship, if any, between the graph of $y = \log x$ and the graph of $y = 10^x$?

−14

7. What value of y corresponds to the value of $x = -14$ on the graph of $y = 10^x$?