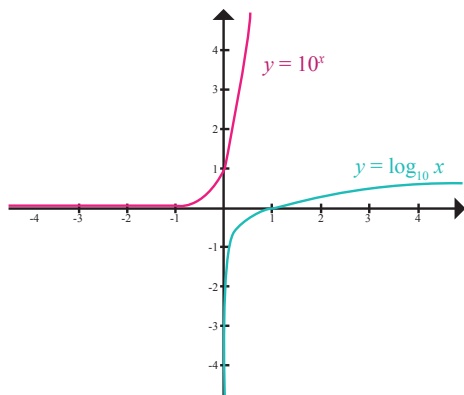


Check it Out



- If you have any difficulty with these solutions, please contact your teacher before continuing.

1.



2. The graphs are symmetrical about the line $y = x$. They are inverses of each other.

Check it Out



- If you have any difficulty with these solutions, please contact your teacher before continuing.

3.

Example:

Parameter a	Equation	Graph
8	$y = 8 \log_{10} x$	
4	$y = 4 \log_{10} x$	
0.5	$y = 0.5 \log_{10} x$	
-0.5	$y = -0.5 \log_{10} x$	

Chart continued on next page.

Check it Out

- If you have any difficulty with these solutions, please contact your teacher before continuing.

Parameter a	Equation	Graph
-4	$y = -4 \log_{10} x$	
-8	$y = -8 \log_{10} x$	

4.

- x -intercept 1
- number of y -intercepts 0
- end behaviour

$a > 0$

The function is increasing. It extends from Quadrant IV to Quadrant I. As the x -values decrease, the graph tends towards the y -axis. As the x -values increase, the graph tends towards positive infinity.

$a < 0$

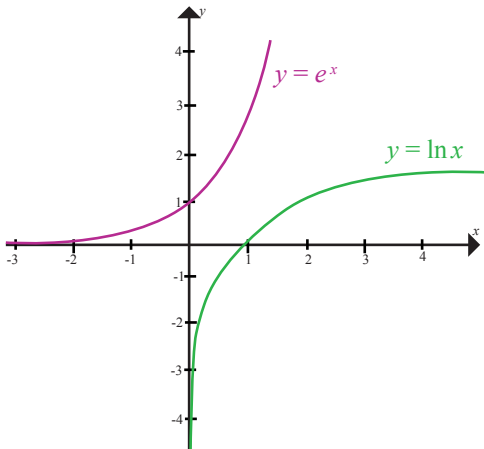
The function is decreasing. It extends from Quadrant I to Quadrant IV. As the x -values decrease, the graph tends towards the y -axis. As the x -values increase, the graph tends towards positive infinity.

- domain $\{x|x > 0, x \in R\}$
- range $\{y \in R\}$

Check it Out

- If you have any difficulty with these solutions, please contact your teacher before continuing.

5.



6. The graphs are symmetrical about the line $y = x$. They are inverses of each other.

7.

Example:

Parameter a	Equation	Graph
8	$y = 8 \ln x$	
4	$y = 4 \ln x$	

Chart continued on next page.

Check it Out



- If you have any difficulty with these solutions, please contact your teacher before continuing.

Parameter a	Equation	Graph
0.5	$y = 0.5 \ln x$	
-0.5	$y = -0.5 \ln x$	
-4	$y = -4 \ln x$	
-8	$y = -8 \ln x$	

Check it Out



- If you have any difficulty with these solutions, please contact your teacher before continuing.

8. • x -intercept 1
- number of y -intercepts 0
 - end behaviour

$$a > 0$$

The function is increasing. It extends from Quadrant IV to Quadrant I. As the x -values decrease, the graph tends towards the y -axis. As the x -values increase, the graph tends towards positive infinity.

$$a < 0$$

The function is decreasing. It extends from Quadrant I to Quadrant IV. As the x -values decrease, the graph tends towards the y -axis. As the x -values increase, the graph tends towards positive infinity.

- domain $\{x|x > 0, x \in R\}$
 - range $\{y \in R\}$
9. Yes. If $a > 0$, the logarithmic function increases and extends from Quadrant IV to Quadrant I. If $a < 0$, the logarithmic function is decreasing and extends from Quadrant I to Quadrant IV.
10. No. The characteristics are the same regardless of base 10 or base e .