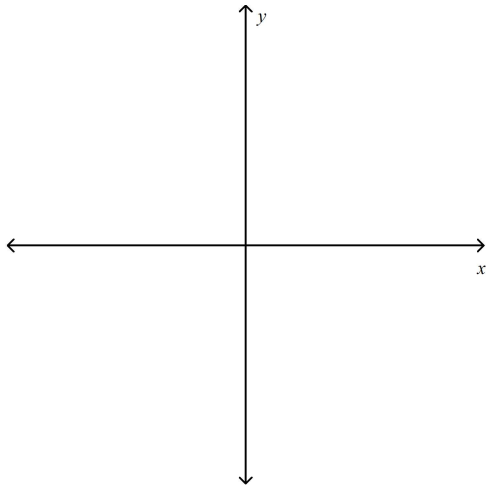
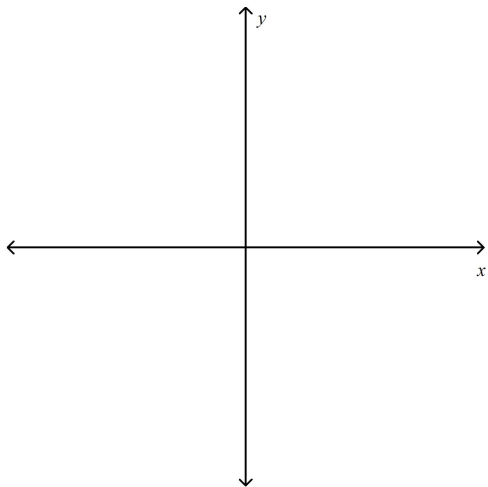


MHF4U - Worksheet - Transformations & Graphing Logarithmic Functions

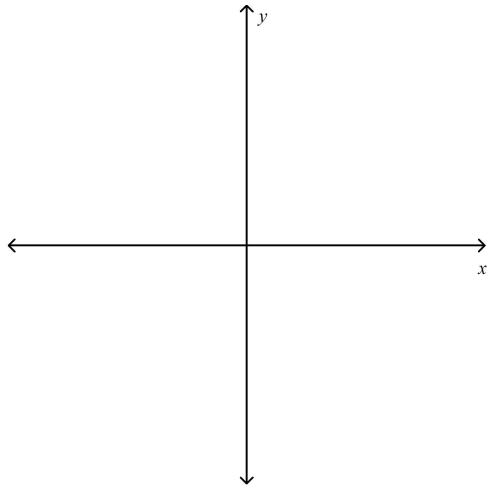
1. Given $y = 5 \log_6 \left[\frac{1}{4}(x + 5) \right] - 3$.
- (a) Determine the image points (i.e., transformed points) that are created by transforming the points (1,0) and (6,1).
- (b) Sketch the graph, clearly labelling any key features.



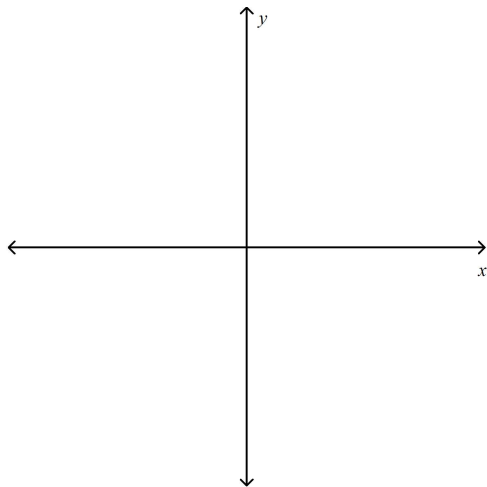
2. Given $y = 3 \log_4 \left[-\frac{1}{3}(x + 4) \right] + 5$.
- (a) Determine the image points (i.e., transformed points) that are created by transforming the points (1,0) and (4,1).
- (b) Sketch the graph, clearly labelling any key features.



3. Given $y = -5 \log_5 \left[-\frac{1}{2}(x + 4) \right] - 4$.
- (a) Determine the image points (i.e., transformed points) that are created by transforming the points (1,0) and (5,1).
- (b) Sketch the graph, clearly labelling any key features.



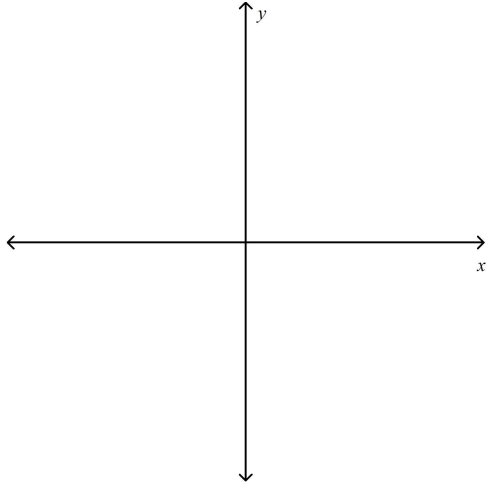
4. Given $y = 4 \log_3 \left[\frac{1}{4}(x - 3) \right] - 2$.
- (a) Determine the image points (i.e., transformed points) that are created by transforming the points (1,0) and (3,1).
- (b) Sketch the graph, clearly labelling any key features.



COMMUNICATION	No Level	0 1 2 3 4	5	6	7	8	9	10
Conventions & Terminology	No level assigned based on content of this page	Unacceptable	Few Major / Many Minor Errors		Few Minor Errors		No Errors	
Expression & Organization			Significant Improvements Required		Few Improvements Required		No Improvements Required	

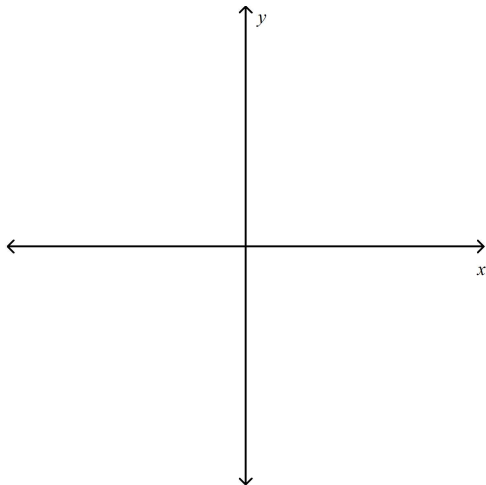
5. Given $y = 3 \log_4 \left(-\frac{1}{4}x \right) + 1$.

- (a) Determine the image points (i.e., transformed points) that are created by transforming the points (1,0) and (4,1).
(b) Sketch the graph, clearly labelling any key features.



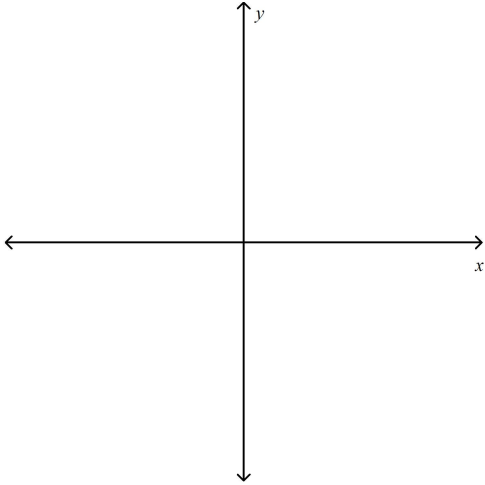
6. Given $y = -2 \log_4 \left[\frac{1}{4}(x + 3) \right] - 4$.

- (a) Determine the image points (i.e., transformed points) that are created by transforming the points (1,0) and (4,1).
(b) Sketch the graph, clearly labelling any key features.



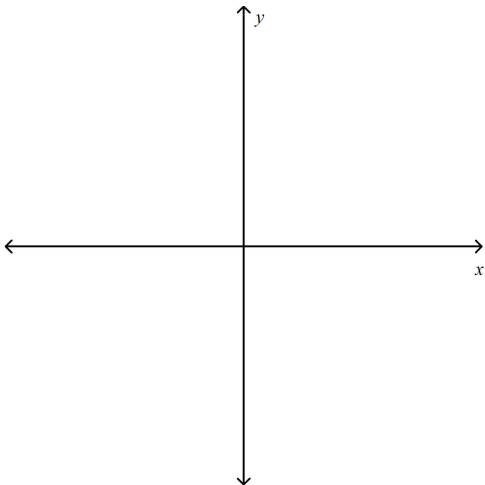
7. Given $y = -4 \log_3 \left[-\frac{1}{4}(x - 2) \right] + 3$.

- (a) Determine the image points (i.e., transformed points) that are created by transforming the points (1,0) and (3,1).
(b) Sketch the graph, clearly labelling any key features.



8. Given $y = -3 \log_8 \left[\frac{1}{3}(x + 1) \right]$.

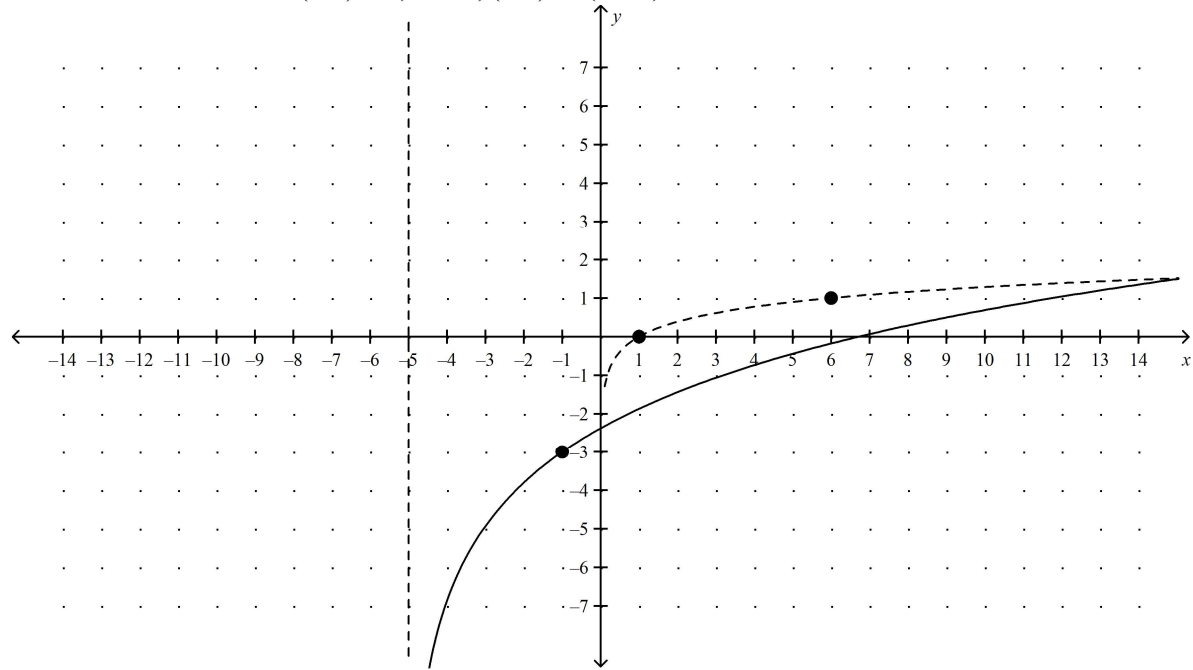
- (a) Determine the image points (i.e., transformed points) that are created by transforming the points (1,0) and (8,1).
(b) Sketch the graph, clearly labelling any key features.



COMMUNICATION	No Level	0 1 2 3 4	5	6	7	8	9	10
Conventions & Terminology	No level assigned based on content of this page	Unacceptable	Few Major / Many Minor Errors		Few Minor Errors		No Errors	
Expression & Organization			Significant Improvements Required		Few Improvements Required		No Improvements Required	

MHF4U - Worksheet - Transformations & Graphing Logarithmic Functions
Answer Section

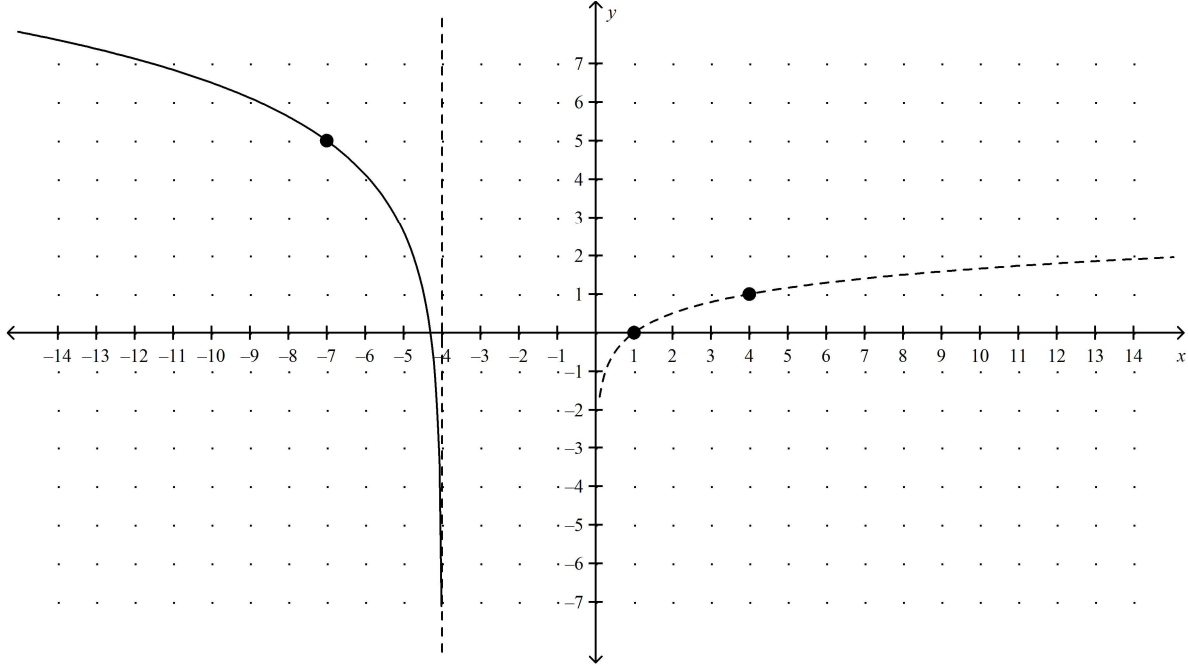
1. ANS:
VA: $x = 0 \rightarrow x = -5$ $(1,0) \rightarrow (-1, -3)(6,1) \rightarrow (19, 2)$



PTS: 1

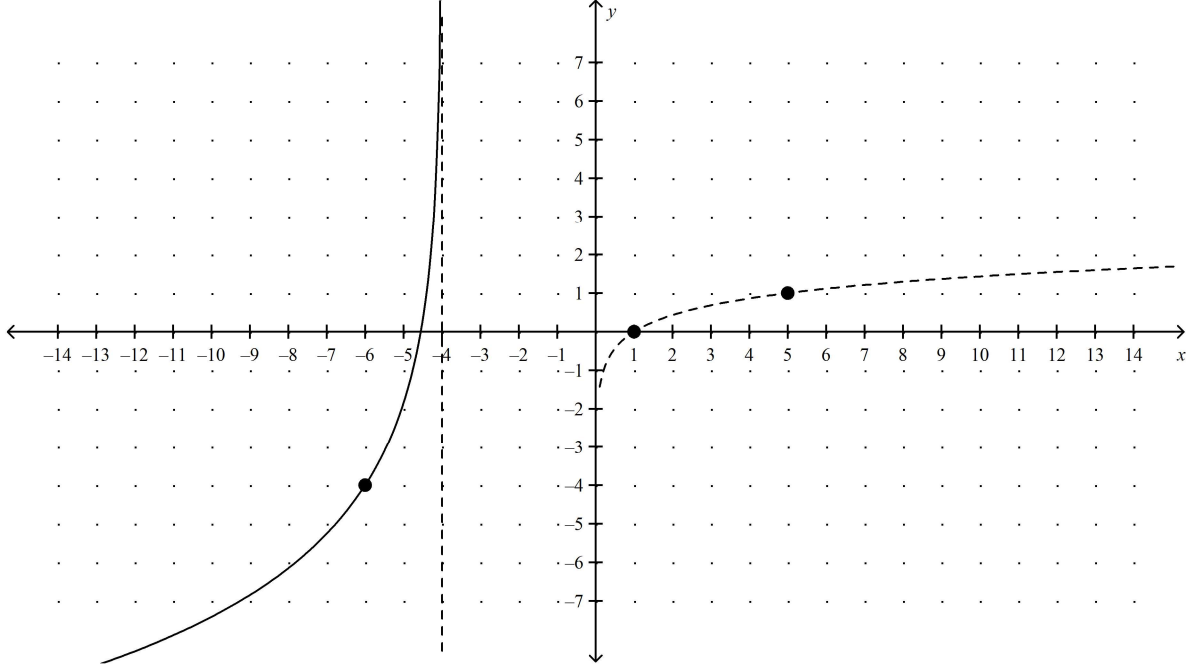
COMMUNICATION	No Level	0 1 2 3 4	5	6	7	8	9	10
Conventions & Terminology	No level assigned based on content of this page	Unacceptable	Few Major / Many Minor Errors		Few Minor Errors		No Errors	
Expression & Organization			Significant Improvements Required		Few Improvements Required		No Improvements Required	

2. ANS:
VA: $x = 0 \rightarrow x = -4$ $(1,0) \rightarrow (-7, 5)$ $(4,1) \rightarrow (-16, 8)$



PTS: 1

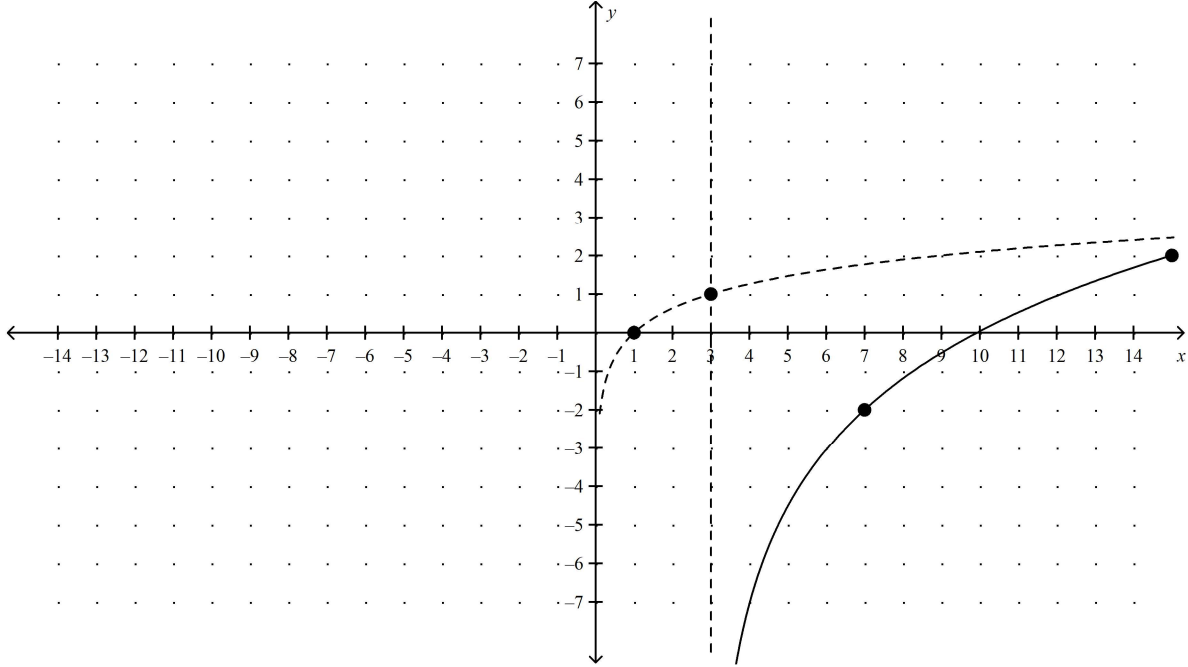
3. ANS:
VA: $x = 0 \rightarrow x = -4$ $(1,0) \rightarrow (-6, -4)$ $(5,1) \rightarrow (-14, -9)$



PTS: 1

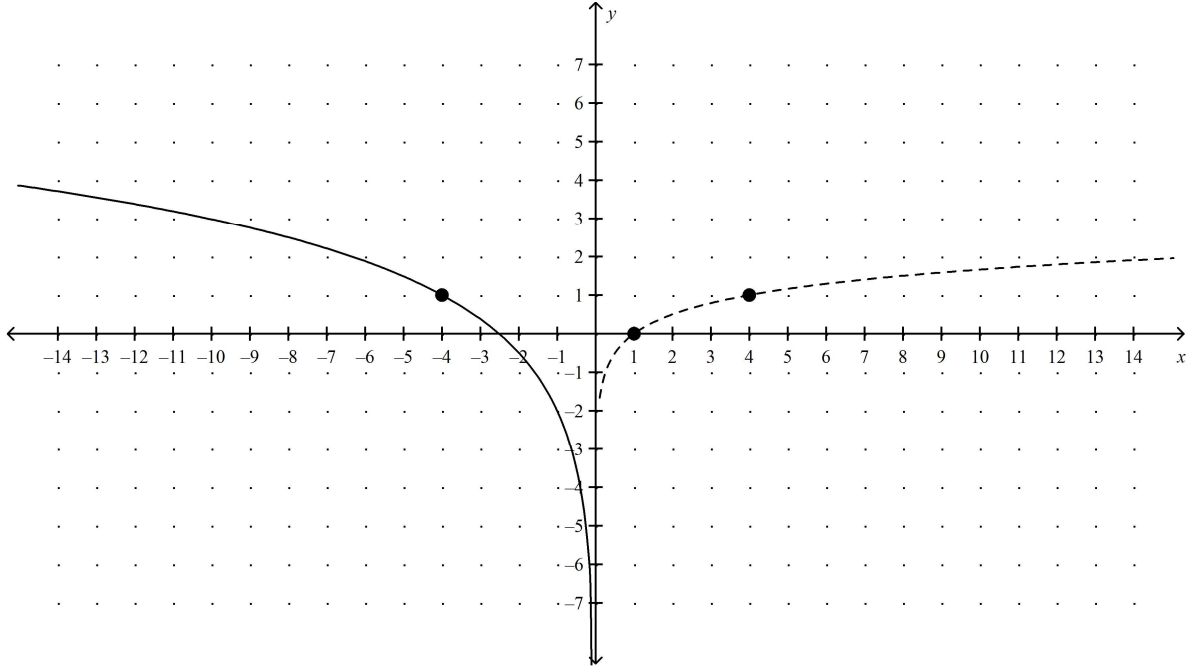
COMMUNICATION	No Level	0 1 2 3 4	5	6	7	8	9	10
Conventions & Terminology	No level assigned based on content of this page	Unacceptable	Few Major / Many Minor Errors		Few Minor Errors		No Errors	
Expression & Organization			Significant Improvements Required		Few Improvements Required		No Improvements Required	

4. ANS:
VA: $x = 0 \rightarrow x = 3$ $(1,0) \rightarrow (7, -2)$ $(3,1) \rightarrow (15, 2)$



PTS: 1

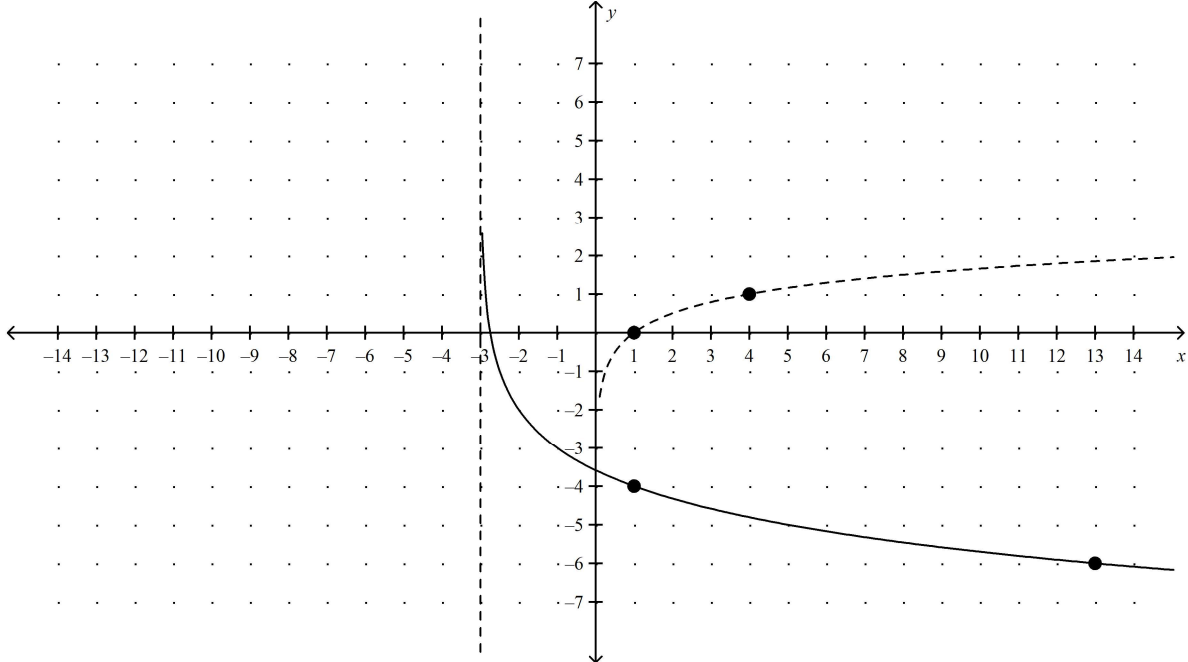
5. ANS:
VA: $x = 0 \rightarrow x = 0$ $(1,0) \rightarrow (-4, 1)$ $(4,1) \rightarrow (-16, 4)$



PTS: 1

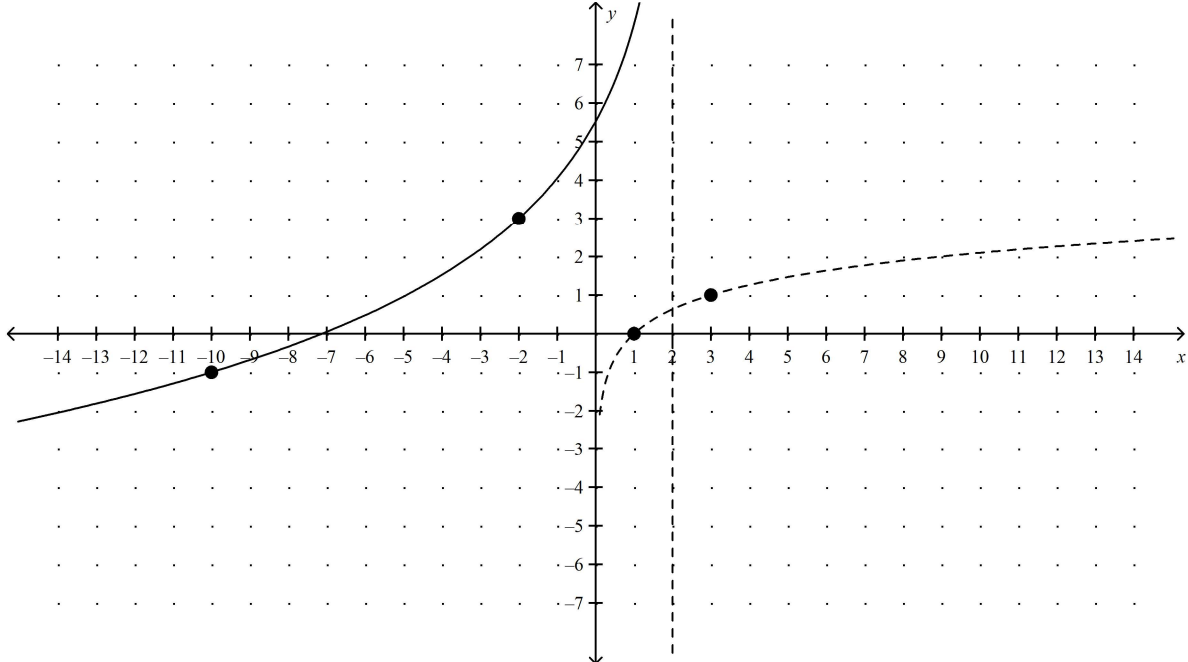
COMMUNICATION	No Level	0 1 2 3 4	5	6	7	8	9	10
Conventions & Terminology	No level assigned based on content of this page	Unacceptable	Few Major / Many Minor Errors		Few Minor Errors		No Errors	
Expression & Organization			Significant Improvements Required		Few Improvements Required		No Improvements Required	

6. ANS:
VA: $x = 0 \rightarrow x = -3$ $(1,0) \rightarrow (1, -4)$ $(4,1) \rightarrow (13, -6)$



PTS: 1

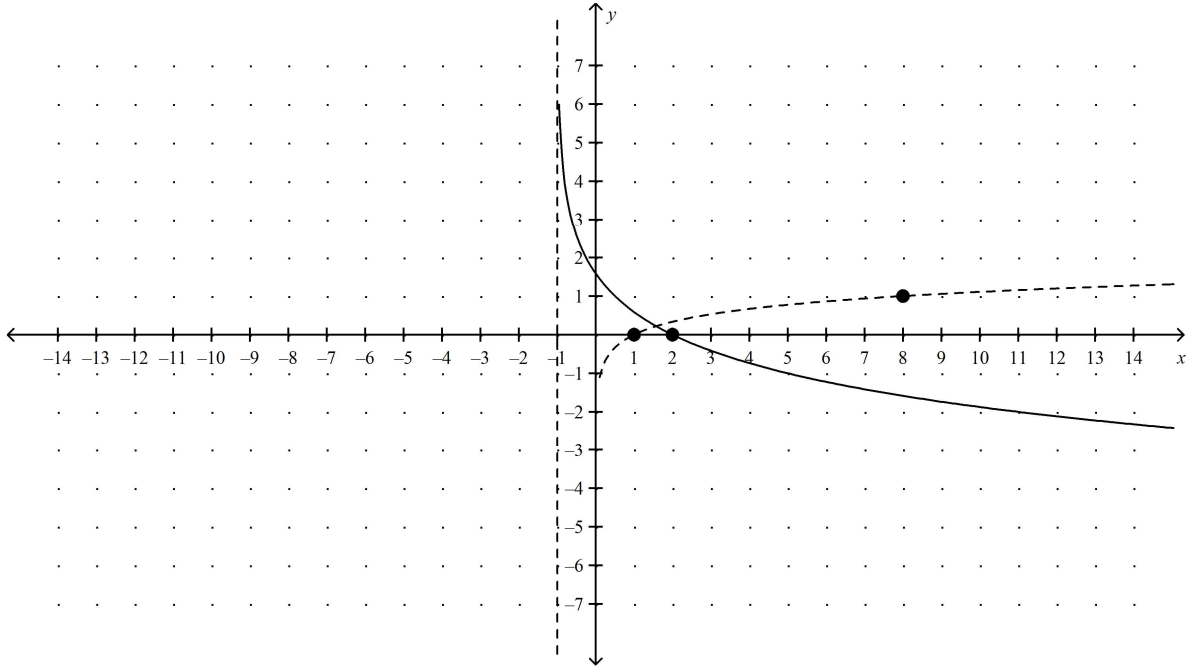
7. ANS:
VA: $x = 0 \rightarrow x = 2$ $(1,0) \rightarrow (-2, 3)$ $(3,1) \rightarrow (-10, -1)$



PTS: 1

COMMUNICATION	No Level	0 1 2 3 4	5	6	7	8	9	10
Conventions & Terminology	No level assigned based on content of this page	Unacceptable	Few Major / Many Minor Errors		Few Minor Errors		No Errors	
Expression & Organization			Significant Improvements Required		Few Improvements Required		No Improvements Required	

8. ANS:
VA: $x = 0 \rightarrow x = -1$ $(1,0) \rightarrow (2, 0)$ $(8,1) \rightarrow (23, -3)$



PTS: 1

COMMUNICATION	No Level	0 1 2 3 4	5	6	7	8	9	10
Conventions & Terminology	No level assigned based on content of this page	Unacceptable	Few Major / Many Minor Errors		Few Minor Errors		No Errors	
Expression & Organization			Significant Improvements Required		Few Improvements Required		No Improvements Required	