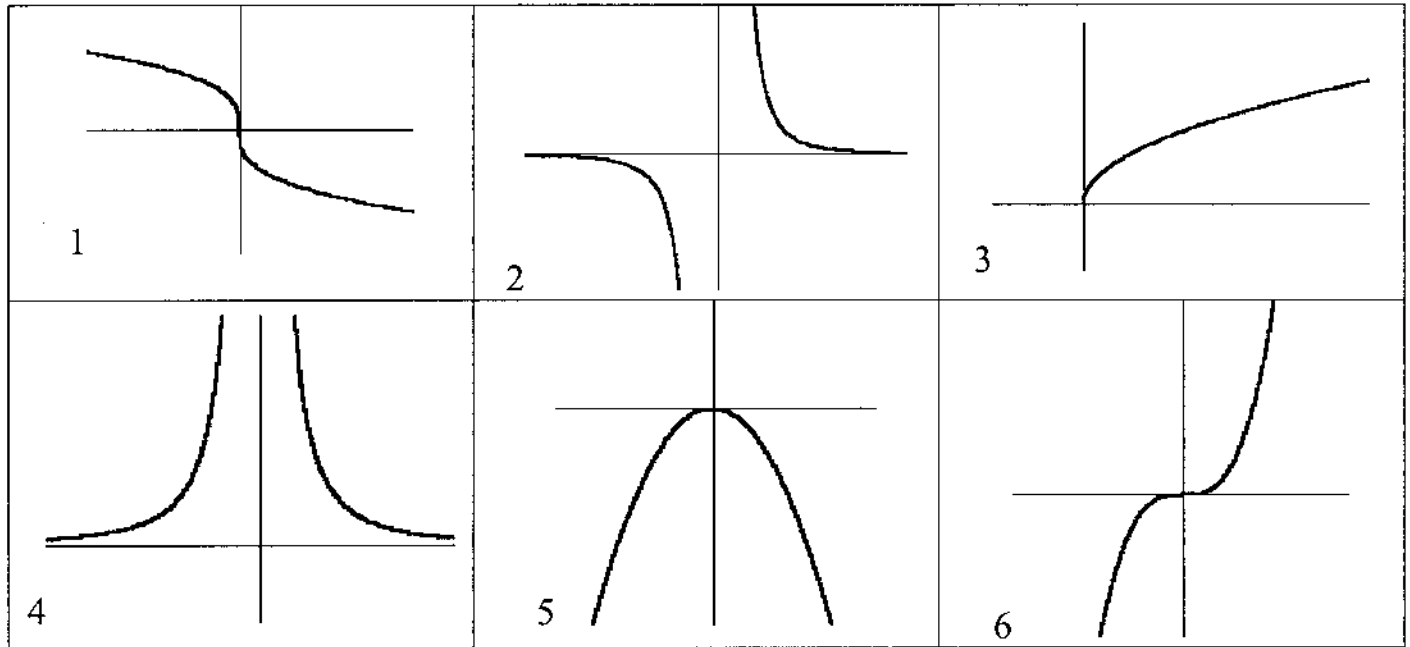


Answers

Power Functions Classwork 1 Introduction to Calculus

Name _____



1. Write a possible equation for each of the above power functions:

1) $y = -x^{\frac{1}{5}}$

2) $y = x^{-3}$

3) $y = x^{\frac{1}{12}}$

4) $y = x^{-4}$

5) $y = -x^2$

6) $y = x^3$

} These can vary, of course!

2. Describe the concavity of function 4. Concave up over whole domain

3. Describe the concavity of function 6. Down for $x < 0$, Up for $x > 0$

4. Which function(s) have a domain of all reals? 1, 5, 6

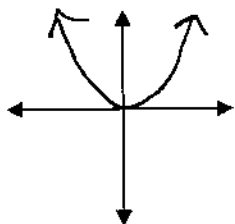
5. Which function(s) have asymptotes of the x and y axis? 2, 4

6. Which function(s) are decreasing for its entire domain? 1, 2

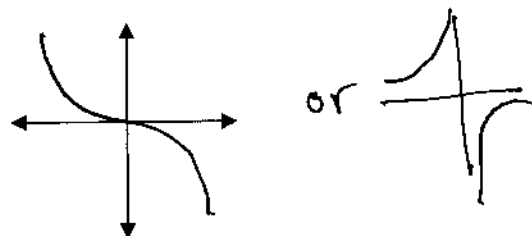
7. Describe the end behavior of function 5: $x \rightarrow \infty, y \rightarrow -\infty$ $x \rightarrow -\infty, y \rightarrow -\infty$

Sketch an example of a power function which satisfies each of the following conditions. In your answers, try to use of the 6 types of power functions at least once each.

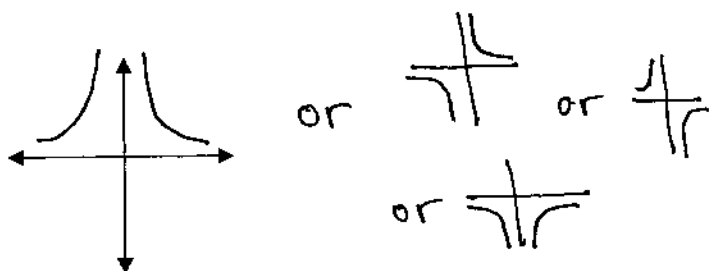
1) Domain: $\mathbb{R}$ Range: $y \geq 0$



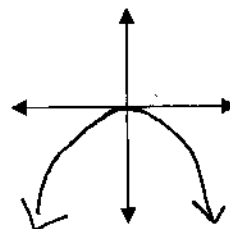
2) Concave up for $x < 0$,
Concave down for $x > 0$



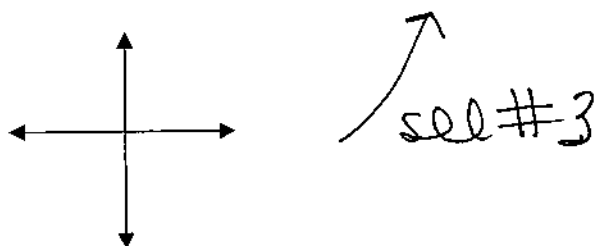
3) Asymptotes: $x = 0$, $y = 0$



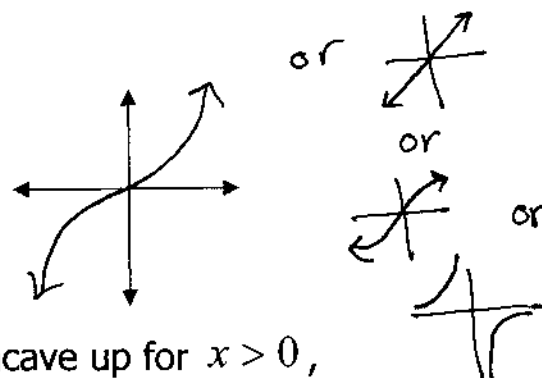
4) Increasing for $x < 0$,
Decreasing for $x > 0$



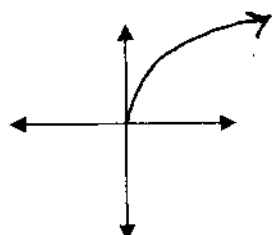
5) End Behavior: as $x \rightarrow \infty$ $y \rightarrow 0$,
as $x \rightarrow -\infty$ $y \rightarrow 0$



6) Increasing for entire domain.



7) Domain: $x \geq 0$ Range: $y \geq 0$



8) Concave up for $x > 0$,
Concave down for $x < 0$

