

Practice on Power Functions

Math 140 — Applied Calculus

Dr. Peratt

Directions: For each of the following functions:

1. Determine whether it is a power function.
2. If it is a power function, write it in the form $y = ax^p$ and identify the values of a and p .
3. Sketch a graph of the function.

1. $y = \frac{x}{5}$

2. $y = 5\sqrt{x}$

3. $y = \frac{8}{x}$

4. $y = \frac{3}{x^2}$

5. $y = 2^x$

6. $y = \frac{3}{8x}$

7. $y = (3x^5)^2$

8. $y = \frac{2x^3}{10}$

9. $y = 3 \cdot 5^x$

Practice on Power Functions—Solutions

Math 140 — Applied Calculus

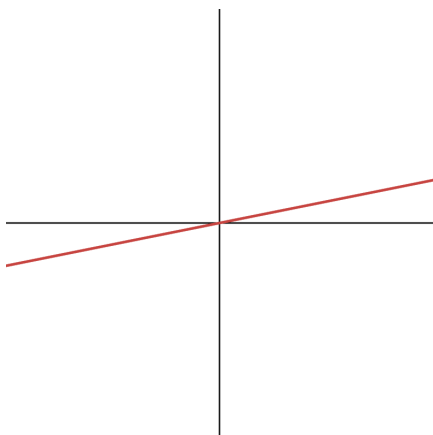
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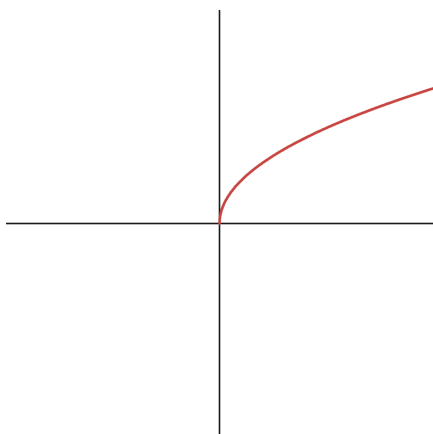
1. $y = \frac{x}{5}$

Answer: It is a power function; $y = \frac{1}{5}x^1$; $a = \frac{1}{5}$, $p = 1$.



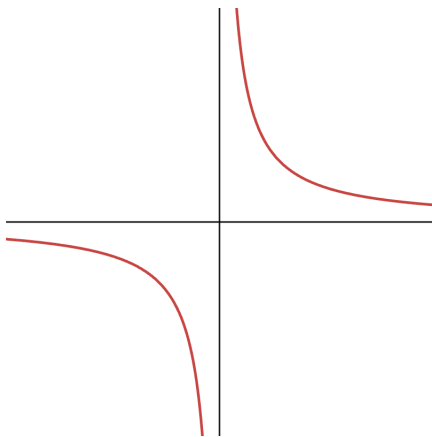
2. $y = 5\sqrt{x}$

Answer: It is a power function; $y = 5x^{1/2}$; $a = 5$, $p = \frac{1}{2}$.



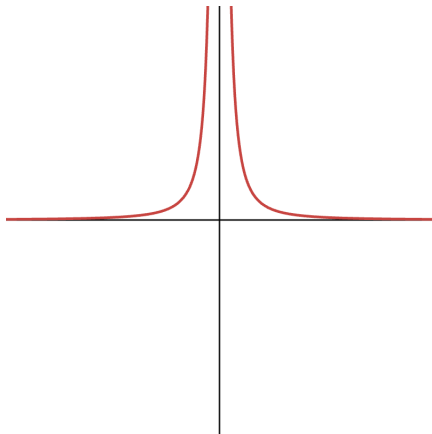
3. $y = \frac{8}{x}$

Answer: It is a power function; $y = 8x^{-1}$; $a = 8$, $p = -1$.



4. $y = \frac{3}{x^2}$

Answer: It is a power function; $y = 3x^{-2}$; $a = 3$, $p = -2$.

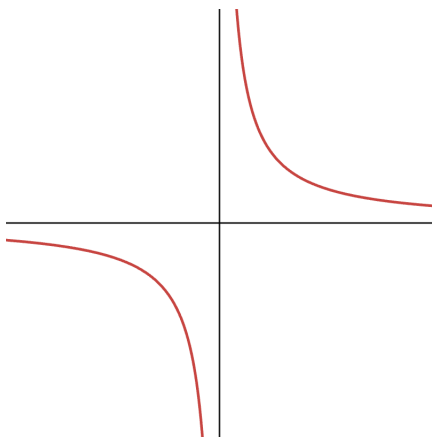


5. $y = 2^x$

Answer: It is *not* a power function, because the exponent is a variable.

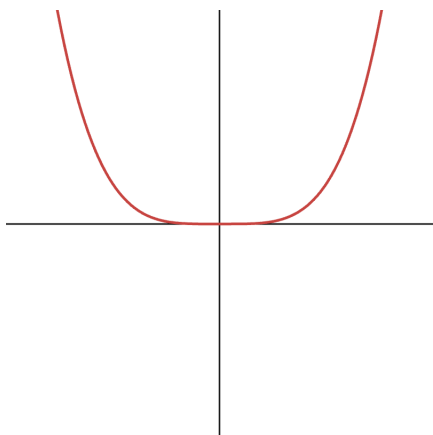
6. $y = \frac{3}{8x}$

Answer: It is a power function; $y = \frac{3}{8}x^{-1}$; $a = \frac{3}{8}$, $p = -1$.



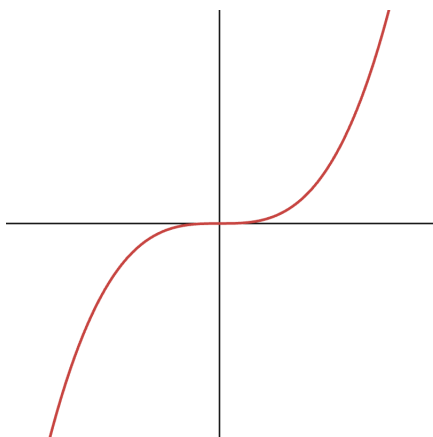
7. $y = (3x^5)^2$

Answer: It is a power function; $y = 9x^{10}$ $a = 9$, $p = 10$.



8. $y = \frac{2x^3}{10}$

Answer: It is a power function; $y = \frac{2}{10}x^3$; $a = \frac{2}{10}$, $p = 3$.



9. $y = 3 \cdot 5^x$

Answer: It is *not* a power function, because the exponent is a variable.