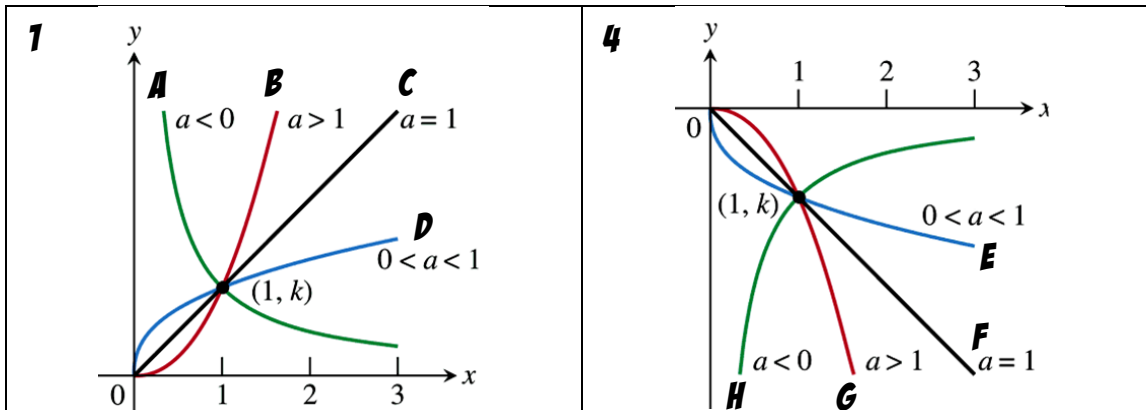


5.2.D3 ~ Power Functions & Their Graphs



If necessary, rewrite the function so that it is in the form $f(x) = kx^a$, then, state the values of the constants k and a . Match the portion of the curve that lies in Quadrant I or Quadrant IV and identify a point the graph contains and whether it passes through the origin or is asymptotic to both axes. Describe the end behavior.

1. $f(x) = -\frac{2}{3}x^4$ $k = \underline{\hspace{2cm}}, a = \underline{\hspace{2cm}}$ $\lim_{x \rightarrow -\infty} f(x) = \underline{\hspace{2cm}}$
 CURVE: _____ CONTAINS THE POINT: _____
 PASSES THROUGH (0, 0) ASYMPTOTIC TO BOTH AXES $\lim_{x \rightarrow \infty} f(x) = \underline{\hspace{2cm}}$

2. $f(x) = -2x^{-2}$ $k = \underline{\hspace{2cm}}, a = \underline{\hspace{2cm}}$ $\lim_{x \rightarrow -\infty} f(x) = \underline{\hspace{2cm}}$
 CURVE: _____ CONTAINS THE POINT: _____
 PASSES THROUGH (0, 0) ASYMPTOTIC TO BOTH AXES $\lim_{x \rightarrow \infty} f(x) = \underline{\hspace{2cm}}$

3. $f(x) = 2^4\sqrt{x}$
 REWRITE IN THE FORM kx^a $k = \underline{\hspace{2cm}}, a = \underline{\hspace{2cm}}$ $\lim_{x \rightarrow -\infty} f(x) = \underline{\hspace{2cm}}$
 CURVE: _____ CONTAINS THE POINT: _____
 PASSES THROUGH (0, 0) ASYMPTOTIC TO BOTH AXES $\lim_{x \rightarrow \infty} f(x) = \underline{\hspace{2cm}}$

4. $f(x) = \frac{1}{2x^5}$
 REWRITE IN THE FORM kx^a $k = \underline{\hspace{2cm}}, a = \underline{\hspace{2cm}}$ $\lim_{x \rightarrow -\infty} f(x) = \underline{\hspace{2cm}}$
 CURVE: _____ CONTAINS THE POINT: _____
 PASSES THROUGH (0, 0) ASYMPTOTIC TO BOTH AXES $\lim_{x \rightarrow \infty} f(x) = \underline{\hspace{2cm}}$

5. $f(x) = -4^3\sqrt{x}$
 REWRITE IN THE FORM kx^a $k = \underline{\hspace{2cm}}, a = \underline{\hspace{2cm}}$ $\lim_{x \rightarrow -\infty} f(x) = \underline{\hspace{2cm}}$
 CURVE: _____ CONTAINS THE POINT: _____
 PASSES THROUGH (0, 0) ASYMPTOTIC TO BOTH AXES $\lim_{x \rightarrow \infty} f(x) = \underline{\hspace{2cm}}$

$$6. f(x) = \frac{2}{5}\sqrt{x^8}$$

REWRITE IN THE FORM kx^a $k = \underline{\hspace{2cm}}, a = \underline{\hspace{2cm}}$

CURVE: $\underline{\hspace{2cm}}$ CONTAINS THE POINT: $\underline{\hspace{2cm}}$

PASSES THROUGH (0, 0) ASYMPTOTIC TO BOTH AXES

$$\lim_{x \rightarrow -\infty} f(x) = \underline{\hspace{2cm}}$$

$$\lim_{x \rightarrow \infty} f(x) = \underline{\hspace{2cm}}$$

$$7. f(x) = x^{-4} \cdot 6x^3$$

REWRITE IN THE FORM kx^a $k = \underline{\hspace{2cm}}, a = \underline{\hspace{2cm}}$

CURVE: $\underline{\hspace{2cm}}$ CONTAINS THE POINT: $\underline{\hspace{2cm}}$

PASSES THROUGH (0, 0) ASYMPTOTIC TO BOTH AXES

$$\lim_{x \rightarrow -\infty} f(x) = \underline{\hspace{2cm}}$$

$$\lim_{x \rightarrow \infty} f(x) = \underline{\hspace{2cm}}$$

$$8. f(x) = -8x^{-1} \cdot \sqrt[3]{x^2}$$

REWRITE IN THE FORM kx^a $k = \underline{\hspace{2cm}}, a = \underline{\hspace{2cm}}$

CURVE: $\underline{\hspace{2cm}}$ CONTAINS THE POINT: $\underline{\hspace{2cm}}$

PASSES THROUGH (0, 0) ASYMPTOTIC TO BOTH AXES

$$\lim_{x \rightarrow -\infty} f(x) = \underline{\hspace{2cm}}$$

$$\lim_{x \rightarrow \infty} f(x) = \underline{\hspace{2cm}}$$

$$9. f(x) = \frac{x^{-1}(2x)^4}{-x^2}$$

REWRITE IN THE FORM kx^a $k = \underline{\hspace{2cm}}, a = \underline{\hspace{2cm}}$

CURVE: $\underline{\hspace{2cm}}$ CONTAINS THE POINT: $\underline{\hspace{2cm}}$

PASSES THROUGH (0, 0) ASYMPTOTIC TO BOTH AXES

$$\lim_{x \rightarrow -\infty} f(x) = \underline{\hspace{2cm}}$$

$$\lim_{x \rightarrow \infty} f(x) = \underline{\hspace{2cm}}$$

$$10. f(x) = \frac{-3x^4}{(\sqrt{x})^4}$$

REWRITE IN THE FORM kx^a $k = \underline{\hspace{2cm}}, a = \underline{\hspace{2cm}}$

CURVE: $\underline{\hspace{2cm}}$ CONTAINS THE POINT: $\underline{\hspace{2cm}}$

PASSES THROUGH (0, 0) ASYMPTOTIC TO BOTH AXES

$$\lim_{x \rightarrow -\infty} f(x) = \underline{\hspace{2cm}}$$

$$\lim_{x \rightarrow \infty} f(x) = \underline{\hspace{2cm}}$$