I-1. Let $f$ be the function specified by the quantitative bounded graph

For which input(s), if any, will $f$ return the output +3?

I-2. Let $f$ be the function specified by the global input-output rule

\[ x \xrightarrow{f} f(x) = (-54.03)x^4 \]

Find the local graph of $f$ near $\infty$.

I-3. Let $f$ be the function specified by the global input-output rule

\[ x \xrightarrow{f} f(x) = (+12.87)x^{-5} \]

Find the local graph of $f$ near $\infty$.

I-4. Let $f$ be the function specified by the global input-output rule

\[ x \xrightarrow{f} f(x) = +83.17x^5 \]

Find the local graph of $f$ near 0.

I-5. Let $f$ be the function specified by the global input-output rule

\[ x \xrightarrow{f} f(x) = +13.06x^{-4} \]
Find the local graph of \( f \) near near 0.

**I-6.** Let \( f \) be the function specified by the global input-output rule

\[
x \xrightarrow{f} f(x) = (-73.05)x^2
\]

Find Height-sign \( f \big|_{\text{near } \infty} \)

**I-7.** Let \( f \) be the function specified by the global input-output rule

\[
x \xrightarrow{f} f(x) = (-18.22)x^{-6}
\]

Find Height-sign \( f \big|_{\text{near } 0} \)

**I-8.** Let \( f \) be the function specified by the global input-output rule

\[
x \xrightarrow{f} f(x) = (-29.73)x^{-4}
\]

Find Slope-sign \( f \big|_{\text{near } \infty} \)

**I-9.** Let \( f \) be the function specified by the global input-output rule

\[
x \xrightarrow{f} f(x) = (-42.27)x^4
\]

Find Slope-sign \( f \big|_{\text{near } 0} \)

**I-10.** Let \( f \) be the function specified by the global input-output rule

\[
x \xrightarrow{f} f(x) = (-53.55)x^{-6}
\]

Find Concavity-sign \( f \big|_{\text{near } \infty} \)

**I-11.** Let \( f \) be the function specified by the global input-output rule

\[
x \xrightarrow{f} f(x) = (-18.43)x^5
\]

Find Concavity-sign \( f \big|_{\text{near } 0} \)

**I-12.** Let \( f \) be a *power* function whose local graph near \( \infty \) is

![Diagram of a power function with input and output rulers and a screen]

Find the local graph of \( f \) near 0.

**I-13.** Let \( f \) be a *power* function whose local graph near 0 is

![Diagram of a power function with input and output rulers and a screen]
Find the local graph of $f$ near $\infty$.

**I-14.** Let $f$ be a *power* function whose local graph near $+\infty$ is

Find the local graph of $f$ near $0^+$.

**I-15.** Let $f$ be a *power* function whose local graph near $0^+$ is

Find the local graph of $f$ near $+\infty$.

**I-16.** Let $f$ be a *power* function whose local graph near $+\infty$ is

Find the local graph of $f$ near $0^-$.

**I-17.** Let $f$ be a *power* function whose local graph near $0^+$ is
Find the local graph of $f$ near $-\infty$.

**I-18.** Let $f$ be the function specified by the global input-output rule

$$x \xrightarrow{f} f(x) = (-35.73)x^1$$

Find the local graph of $f$ near 0.

**I-19.** Let $f$ be the function specified by the global input-output rule

$$x \xrightarrow{f} f(x) = (-32.28)x^{-1}$$

Find the local graph of $f$ near $\infty$.

**I-20.** Let $f$ be a power function whose local graph near 0 is

Which of the following, if any, must be features of the global input-output rule that specifies $f$

- M The exponent must be positive
- N The exponent must be negative
- P The exponent must be even
- Q The exponent must be odd
- R The coefficient must be positive
- S The coefficient must be negative
- T Cannot be

**I-21.** Let $f$ be a power function whose local graph near $\infty$ is
Which of the following, if any, must be features of the global input-output rule that specifies $f$:

M The exponent must be positive   N The exponent must be negative
P The exponent must be even       Q The exponent must be odd
R The coefficient must be positive S The coefficient must be negative
T Cannot be

I-22. Let $f$ be a power function such that $\text{Height-size} f|_{\text{near } 0} = (\text{small}, \text{small})$, which of the following must be a feature of the global input-output rule that specifies $f$:

M The exponent must be positive   N The exponent must be negative
P The exponent must be even       Q The exponent must be odd
R The coefficient must be positive S The coefficient must be negative
T Cannot be

I-23. Let $f$ be a power function such that $\text{Height-sign} f|_{\text{near } 0} = (-, +)$, which of the following must be features of the global input-output rule that specifies $f$:

M The exponent must be positive   N The exponent must be negative
P The exponent must be even       Q The exponent must be odd
R The coefficient must be positive S The coefficient must be negative
T Cannot be

I-24. Let $f$ be a power function such that $\text{Slope-sign} f|_{\text{near } \infty} = (\mathcal{U}, \mathcal{\cap})$.

Which of the following, if any, must be features of the global input-output rule of $f$

M The exponent must be positive   N The exponent must be negative
P The exponent must be even       Q The exponent must be odd
R The coefficient must be positive S The coefficient must be negative
T Cannot be

I-25. Let $f$ be a power function such that $\text{Concavity-sign} f|_{\text{near } \infty} = (\mathcal{U}, \mathcal{\cap})$.

Which of the following, if any, must be a feature of the global input-output rule that specifies $f$:

M The exponent must be positive   N The exponent must be negative
P The exponent must be even       Q The exponent must be odd
R The coefficient must be positive S The coefficient must be negative
T Cannot be