

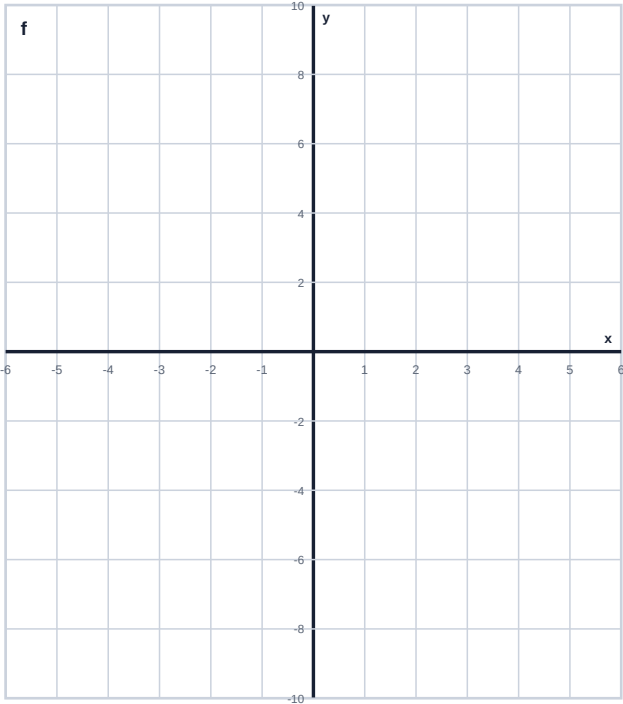
Graphing from Function Properties

Use the listed properties to sketch each function on the displayed window.

1. $f(x) = -(x + 2)^2 + 4$

All real x.

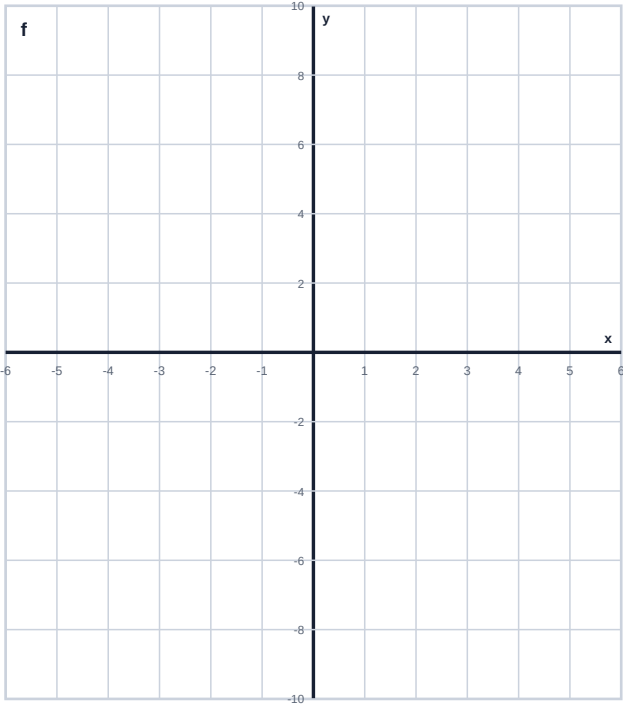
Find: intercepts, critical points, inflection points, increasing decreasing, concavity, relative extrema.
Use the blank grid to sketch f on the displayed window.



2. $f(x) = (x + 1)^2(x - 1)$

All real x.

Find: intercepts, critical points, inflection points, increasing decreasing, concavity, relative extrema.
Use the blank grid to sketch f on the displayed window.



Graphing from Function Properties

Use the listed properties to sketch each function on the displayed window.

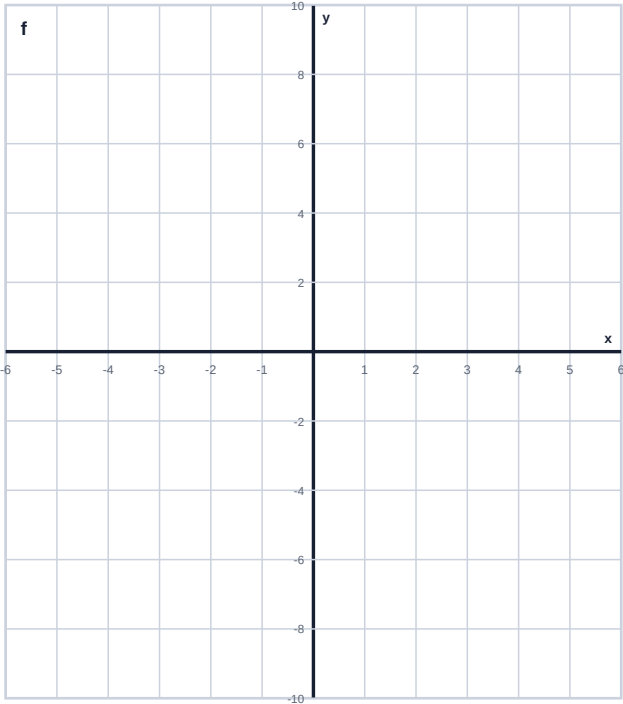
3. $f(x) = -(x - 1) - 4/(x - 1)$

All real x except $x = 1$

Find: intercepts, critical points, inflection points, increasing decreasing, concavity, relative extrema.

Use the blank grid to sketch f on the displayed window.

Vertical asymptote: $x = 1$. Slant asymptote: $y = -(x - 1)$. Domain excludes $x = 1$.



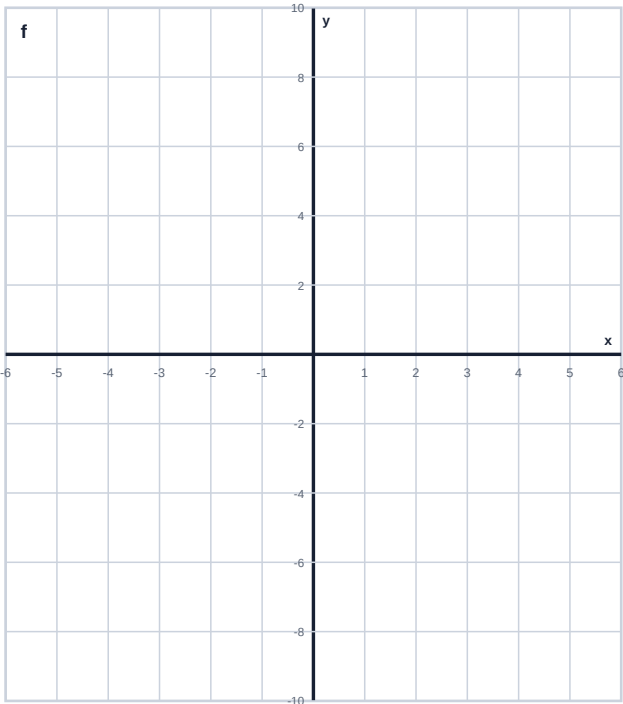
4. $f(x) = 2x - 2/x$

All real x except $x = 0$

Find: intercepts, critical points, inflection points, increasing decreasing, concavity, relative extrema.

Use the blank grid to sketch f on the displayed window.

Vertical asymptote: $x = 0$. Slant asymptote: $y = 2x$. Domain excludes $x = 0$.



Graphing from Function Properties

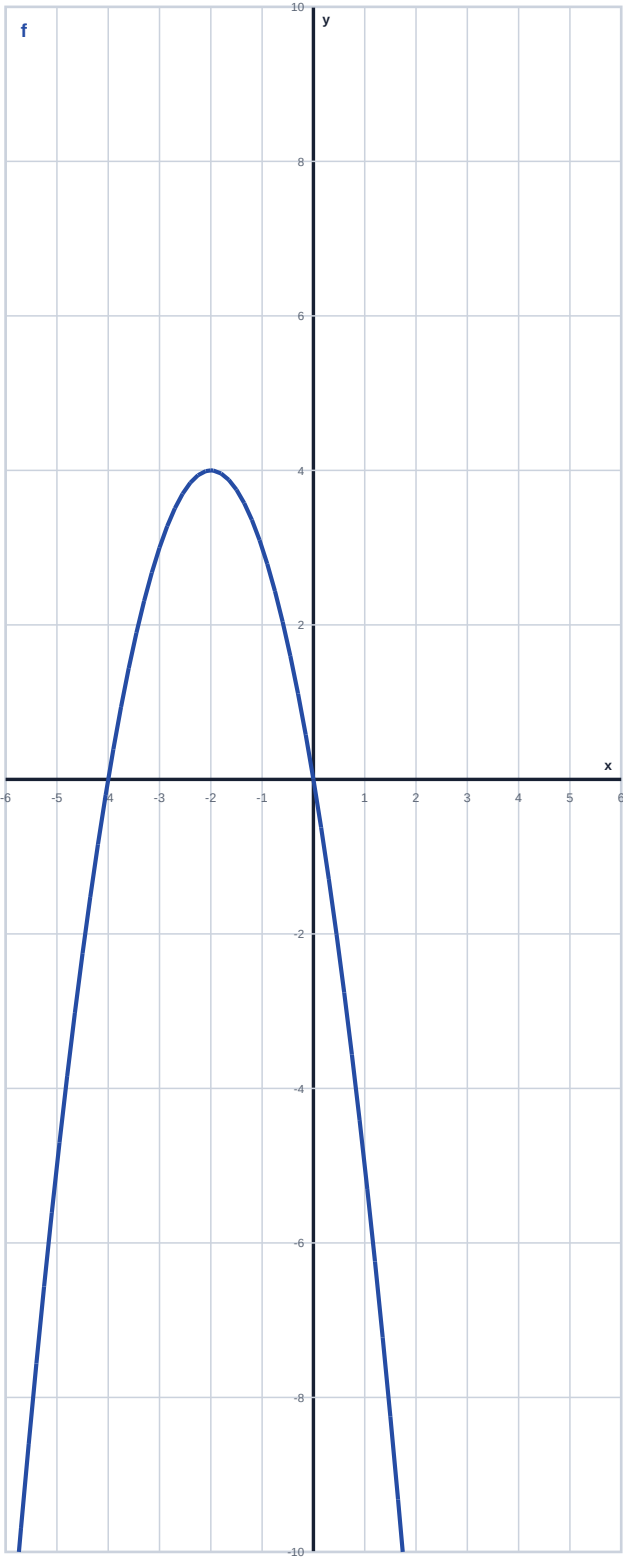
Worked Answer Key

Use the listed properties to sketch each function on the displayed window.

1. $f(x) = -(x + 2)^2 + 4$

All real x .

- Intercepts: $(0, 0)$, $(-4, 0)$.
Critical points: $(-2, 4)$.
Inflection points: none.
Behavior: increasing on $(-\infty, -2)$; decreasing on $(-2, \infty)$.
Concavity: concave-down on $(-\infty, \infty)$.
Relative extrema: maximum at $(-2, 4)$.



Graphing from Function Properties

Worked Answer Key

Use the listed properties to sketch each function on the displayed window.

2. $f(x) = (x + 1)^2(x - 1)$

All real x .

Intercepts: $(0, -1)$, $(-1, 0)$, $(1, 0)$.

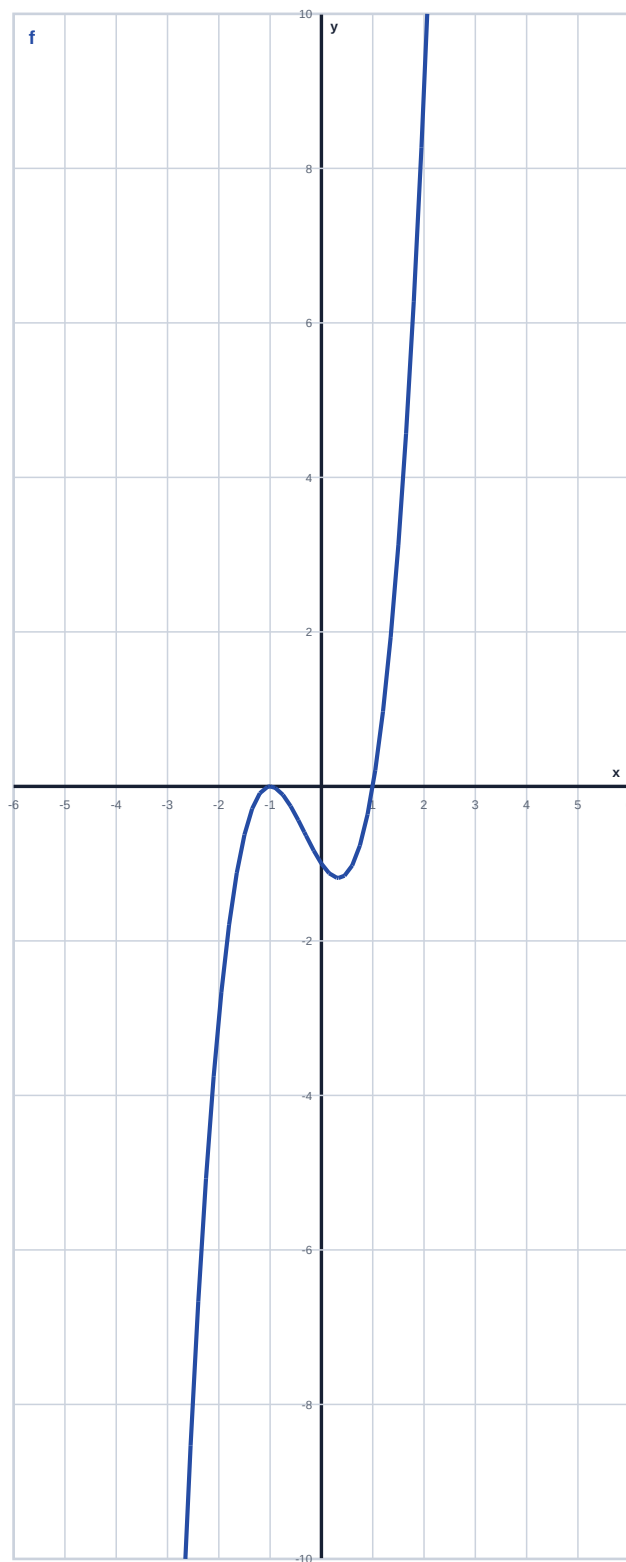
Critical points: $(-1, 0)$, $(1/3, -32/27)$.

Inflection points: $(-1/3, -16/27)$.

Behavior: increasing on $(-\infty, -1)$; decreasing on $(-1, 1/3)$; increasing on $(1/3, \infty)$.

Concavity: concave-down on $(-\infty, -1/3)$; concave-up on $(-1/3, \infty)$.

Relative extrema: maximum at $(-1, 0)$, minimum at $(1/3, -32/27)$.



Graphing from Function Properties

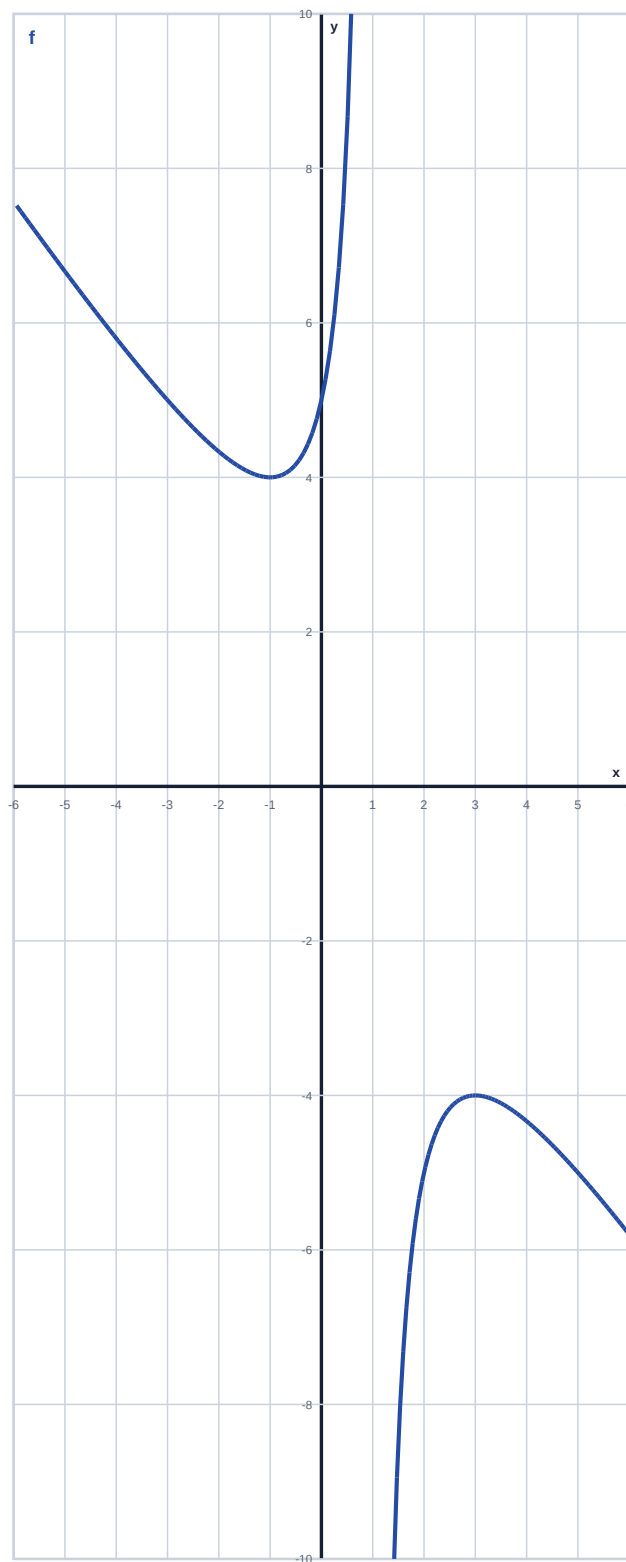
Worked Answer Key

Use the listed properties to sketch each function on the displayed window.

3. $f(x) = -(x - 1) - 4/(x - 1)$

All real x except $x = 1$ Intercepts: $(0, 5)$.Critical points: $(-1, 4)$, $(3, -4)$.

Inflection points: none.

Behavior: decreasing on $(-\infty, -1)$; increasing on $(-1, 1)$; increasing on $(1, 3)$; decreasing on $(3, \infty)$.Concavity: concave-up on $(-\infty, 1)$; concave-down on $(1, \infty)$.Relative extrema: minimum at $(-1, 4)$, maximum at $(3, -4)$.Vertical asymptote: $x = 1$. Slant asymptote: $y = -(x - 1)$. Domain excludes $x = 1$.

Graphing from Function Properties

Worked Answer Key

Use the listed properties to sketch each function on the displayed window.

4. $f(x) = 2x - 2/x$

All real x except $x = 0$

Intercepts: $(-1, 0)$, $(1, 0)$.

Critical points: none.

Inflection points: none.

Behavior: increasing on $(-\infty, 0)$; increasing on $(0, \infty)$.

Concavity: concave-up on $(-\infty, 0)$; concave-down on $(0, \infty)$.

Relative extrema: none.

Vertical asymptote: $x = 0$. Slant asymptote: $y = 2x$. Domain excludes $x = 0$.

