

Math Sheet

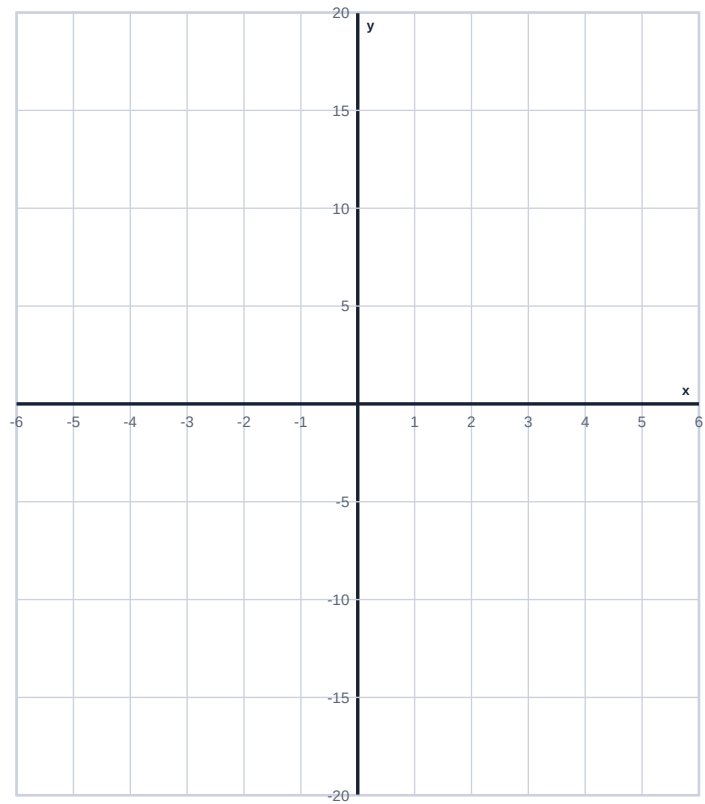
Name _____ Score _____ Teacher _____ Date _____

Graphing General Rational Functions

Factor when useful. Find the original domain exclusions, holes, intercepts and asymptotes, then graph each function on the blank grid.

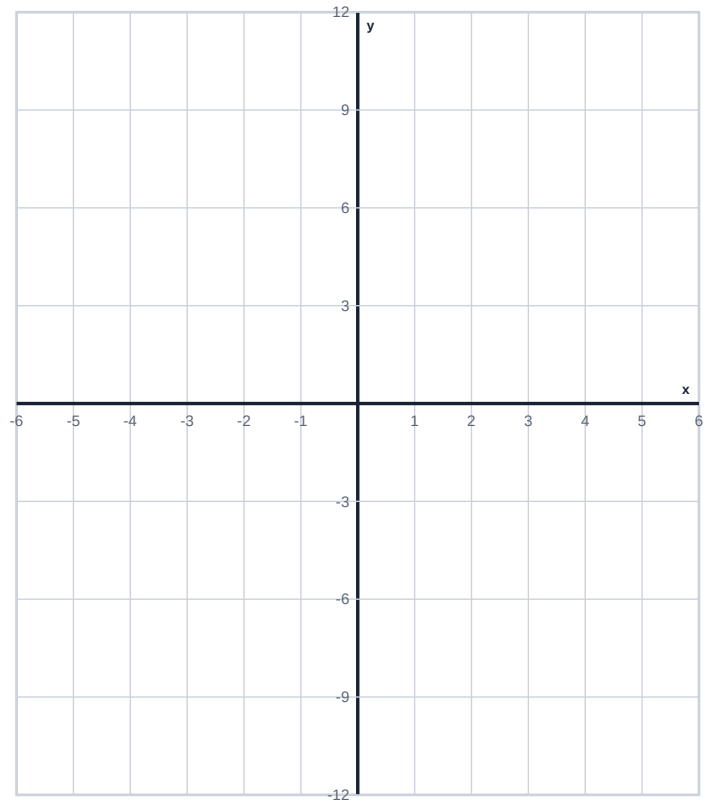
1. $f(x) = (-x^2 - 3x - 2)/(x - 1)$

Original domain exclusions: _____
Holes: _____
Intercepts: _____
Vertical/horizontal/slant behavior: _____
Plot reference points, then sketch each branch.



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

Original domain exclusions: _____
Holes: _____
Intercepts: _____
Vertical/horizontal/slant behavior: _____
Plot reference points, then sketch each branch.



Math Sheet

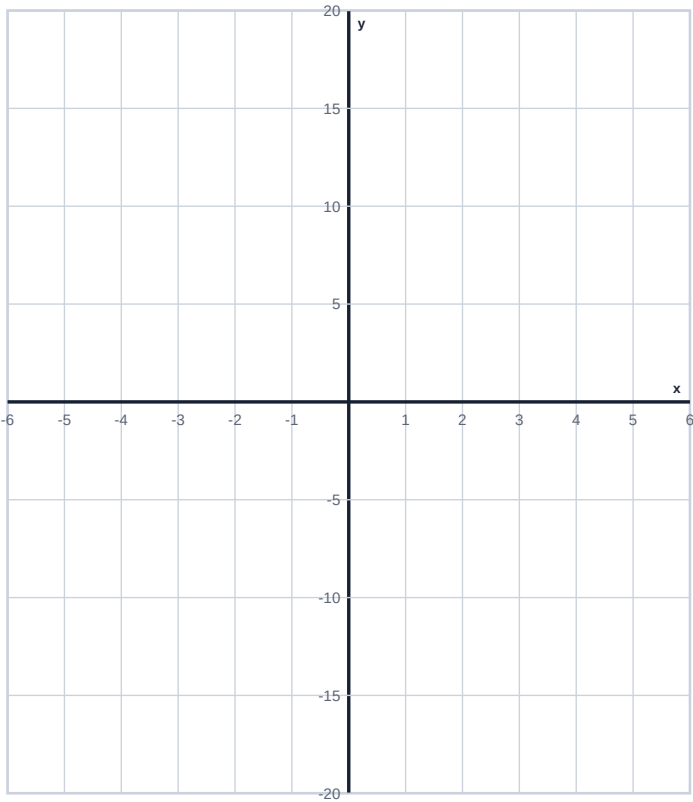
Name _____ Score _____ Teacher _____ Date _____

Graphing General Rational Functions

Factor when useful. Find the original domain exclusions, holes, intercepts and asymptotes, then graph each function on the blank grid.

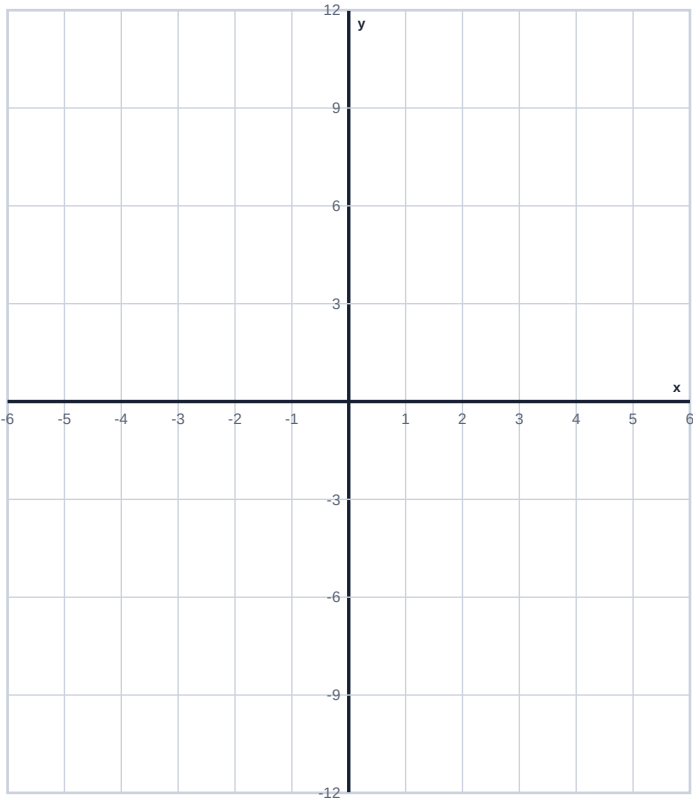
3. $f(x) = (-x^2 + x - 3)/(x^2 - 3x + 2)$

Original domain exclusions: _____
Holes: _____
Intercepts: _____
Vertical/horizontal/slant behavior: _____
Plot reference points, then sketch each branch.



4. $f(x) = (-1)/(x^2 - 3x + 2)$

Original domain exclusions: _____
Holes: _____
Intercepts: _____
Vertical/horizontal/slant behavior: _____
Plot reference points, then sketch each branch.



Math Sheet

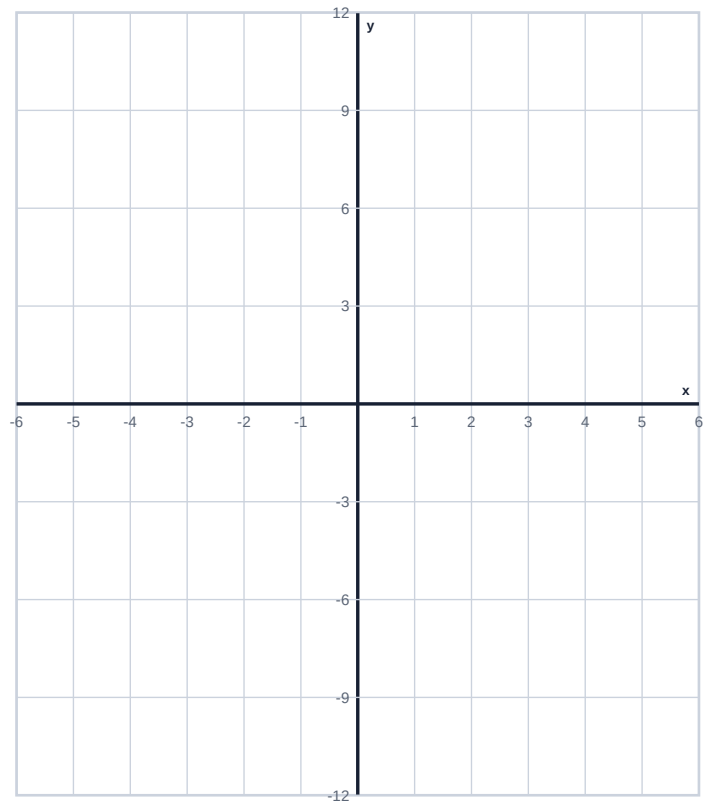
Name _____ Score _____ Teacher _____ Date _____

Graphing General Rational Functions

Factor when useful. Find the original domain exclusions, holes, intercepts and asymptotes, then graph each function on the blank grid.

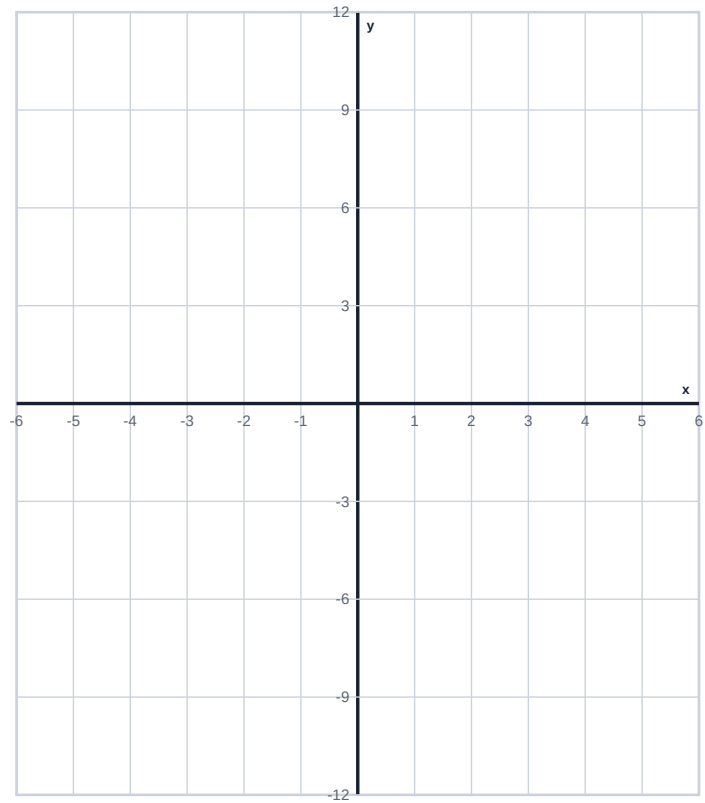
5. $f(x) = (-x - 2)/(x^2 - 2x + 1)$

Original domain exclusions: _____
Holes: _____
Intercepts: _____
Vertical/horizontal/slant behavior: _____
Plot reference points, then sketch each branch.



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

Original domain exclusions: _____
Holes: _____
Intercepts: _____
Vertical/horizontal/slant behavior: _____
Plot reference points, then sketch each branch.



Math Sheet

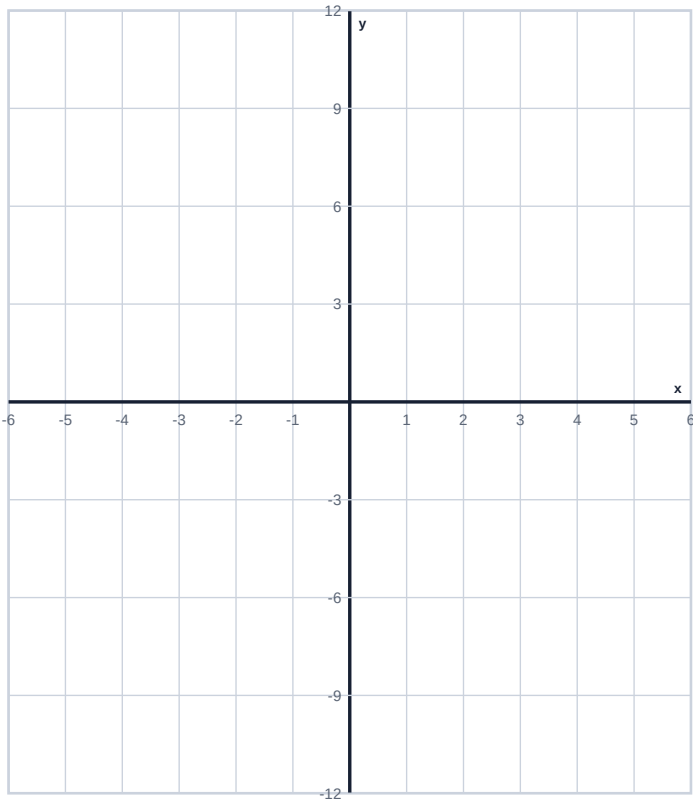
Name _____ Score _____ Teacher _____ Date _____

Graphing General Rational Functions

Factor when useful. Find the original domain exclusions, holes, intercepts and asymptotes, then graph each function on the blank grid.

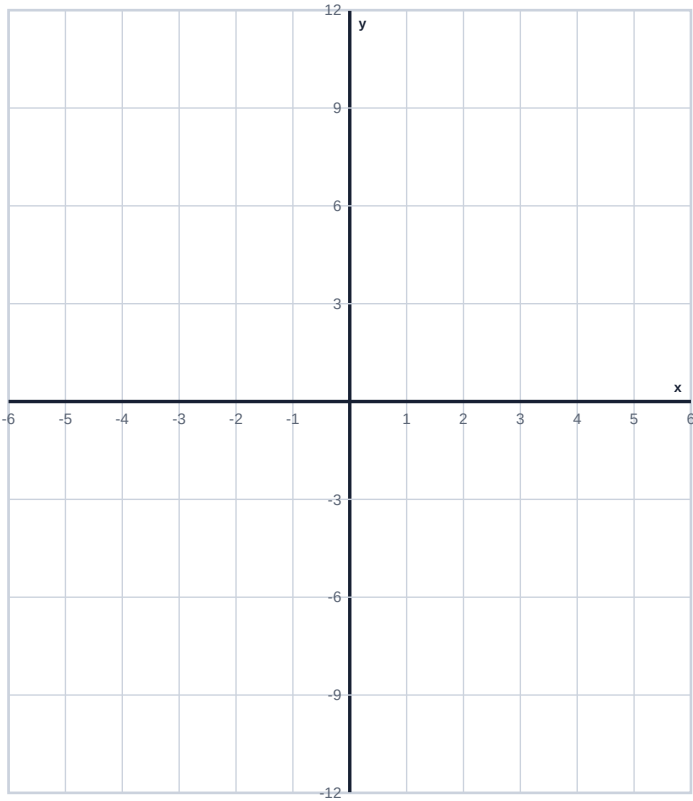
7. $f(x) = (-x + 1)/(x^2 - 3x + 2)$

Original domain exclusions: _____
Holes: _____
Intercepts: _____
Vertical/horizontal/slant behavior: _____
Plot reference points, then sketch each branch.



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

Original domain exclusions: _____
Holes: _____
Intercepts: _____
Vertical/horizontal/slant behavior: _____
Plot reference points, then sketch each branch.



Math Sheet

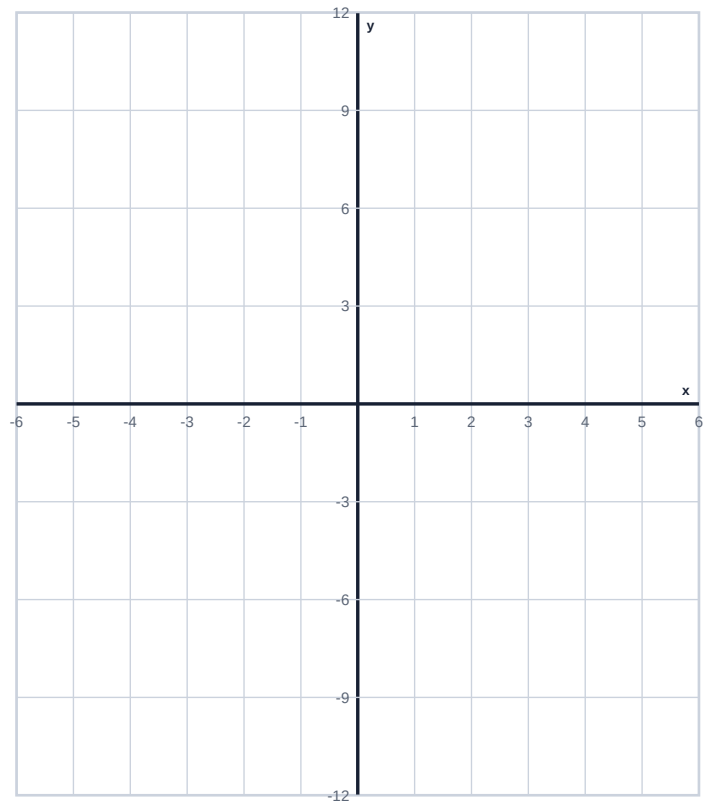
Name _____ Score _____ Teacher _____ Date _____

Graphing General Rational Functions

Factor when useful. Find the original domain exclusions, holes, intercepts and asymptotes, then graph each function on the blank grid.

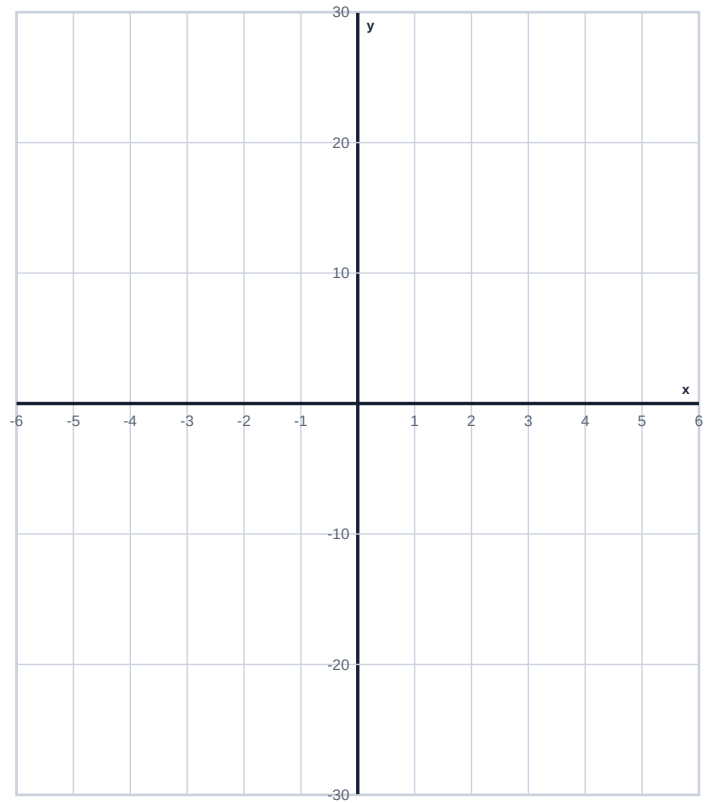
9. $f(x) = (-x^2 - x - 1)/(x^2 - x)$

Original domain exclusions: _____
Holes: _____
Intercepts: _____
Vertical/horizontal/slant behavior: _____
Plot reference points, then sketch each branch.



10. $f(x) = (2x^2 + 6x + 4)/(x - 1)$

Original domain exclusions: _____
Holes: _____
Intercepts: _____
Vertical/horizontal/slant behavior: _____
Plot reference points, then sketch each branch.



Math Sheet

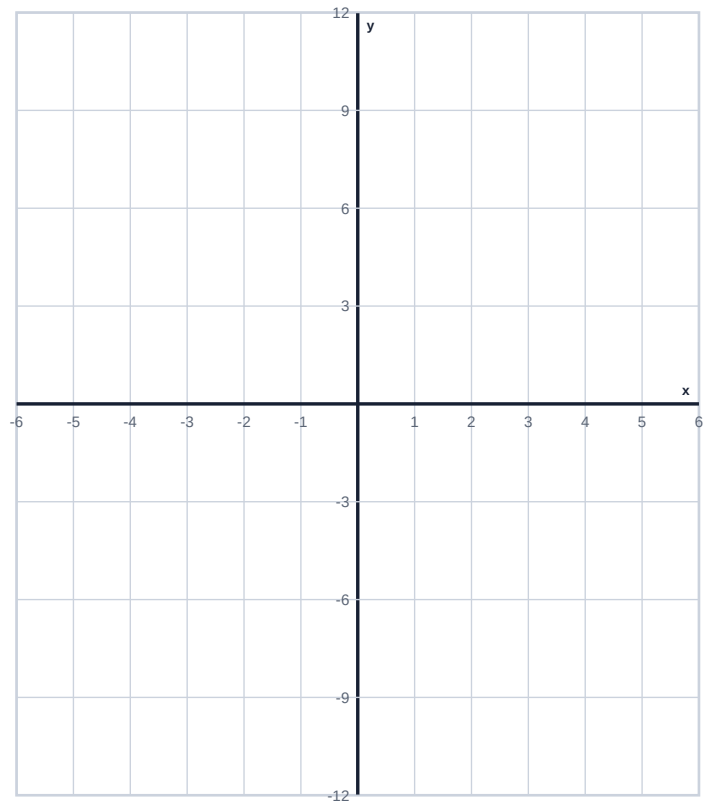
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Graphing General Rational Functions

Factor when useful. Find the original domain exclusions, holes, intercepts and asymptotes, then graph each function on the blank grid.

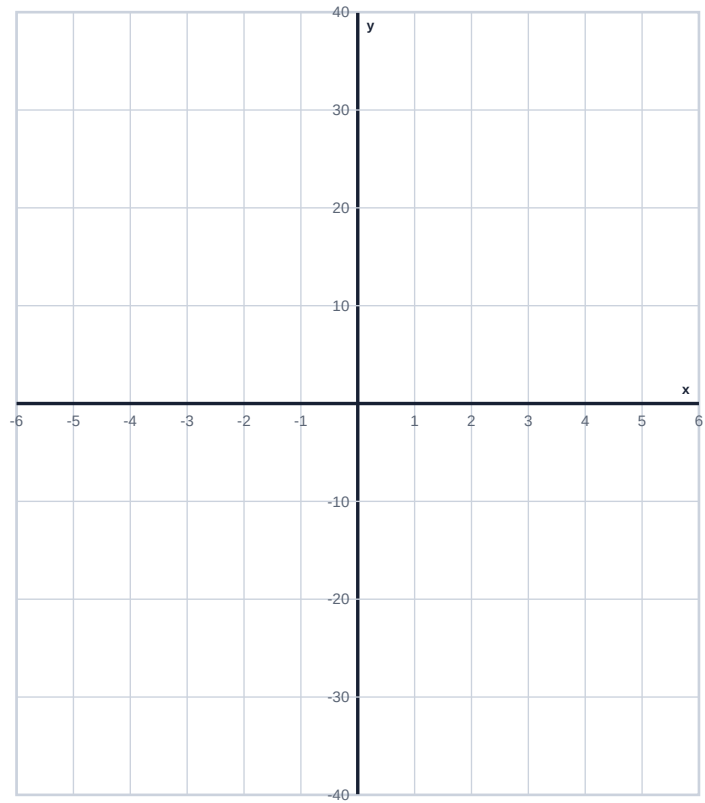
11. $f(x) = (2x^2 + 2x - 4)/(x - 1)$

Original domain exclusions: _____
Holes: _____
Intercepts: _____
Vertical/horizontal/slant behavior: _____
Plot reference points, then sketch each branch.



12. $f(x) = (2x^2 - 2x + 6)/(x^2 - 3x + 2)$

Original domain exclusions: _____
Holes: _____
Intercepts: _____
Vertical/horizontal/slant behavior: _____
Plot reference points, then sketch each branch.

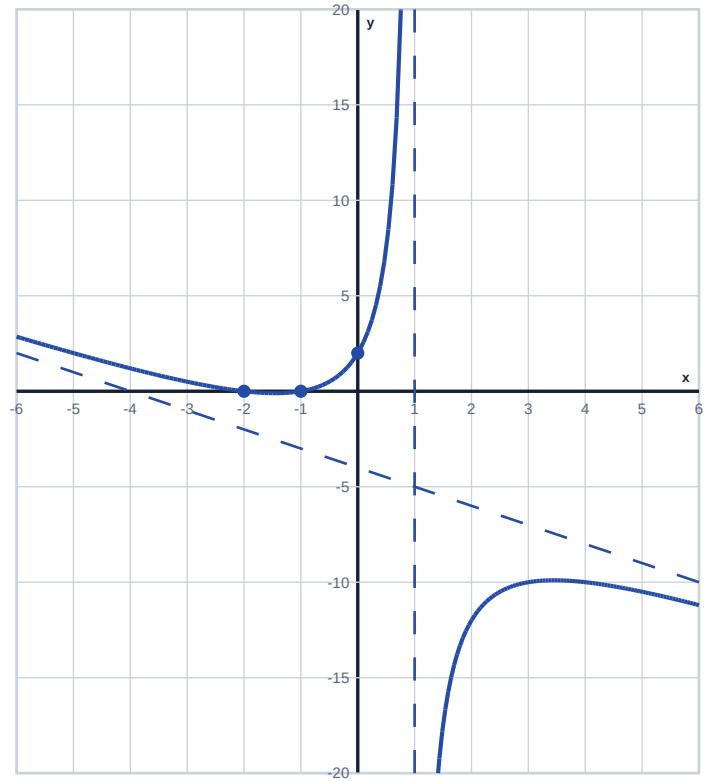


Graphing General Rational Functions
Answer Key

Factor when useful. Find the original domain exclusions, holes, intercepts and asymptotes, then graph each function on the blank grid.

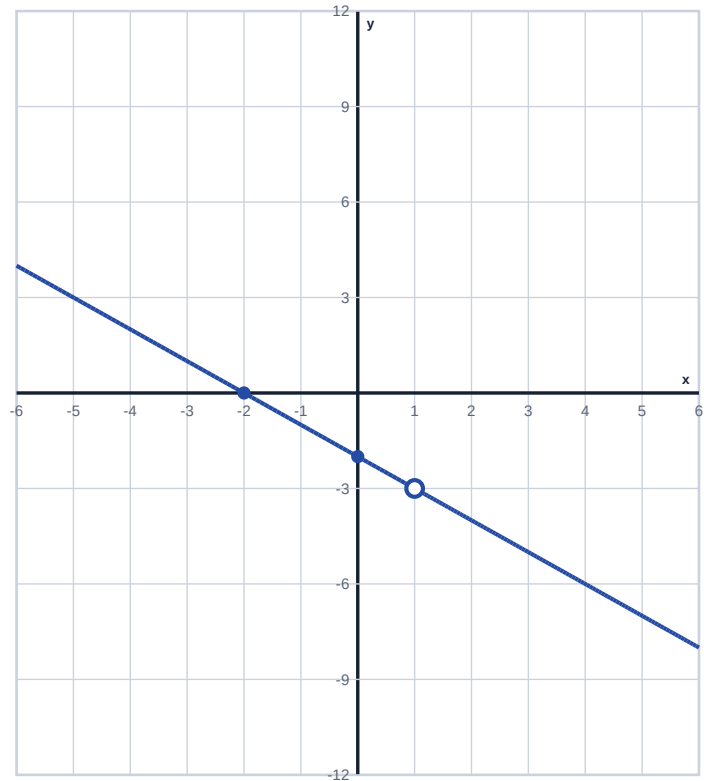
1. $f(x) = (-x^2 - 3x - 2)/(x - 1)$

Original domain exclusions: $x = 1$.
Reduced form: $f(x) = (-x^2 - 3x - 2)/(x - 1)$.
Vertical asymptotes: $x = 1$.
Holes: none.
 x -intercepts: $(-2, 0)$, $(-1, 0)$; y -intercept: $(0, 2)$.
Slant asymptote: $y = -x - 4$.
Reference points: $(0, 2)$, $(2, -12)$, $(-1, 0)$, $(3, -10)$.



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

Original domain exclusions: $x = 1$.
Reduced form: $f(x) = -x - 2$.
Vertical asymptotes: none.
Holes: $(1, -3)$.
 x -intercepts: $(-2, 0)$; y -intercept: $(0, -2)$.
Reduced graph: $y = -x - 2$ (with original holes).
Reference points: $(0, -2)$, $(2, -4)$, $(-1, -1)$, $(3, -5)$.
Polynomial division quotient: $-x - 2$. No separate asymptote is added.

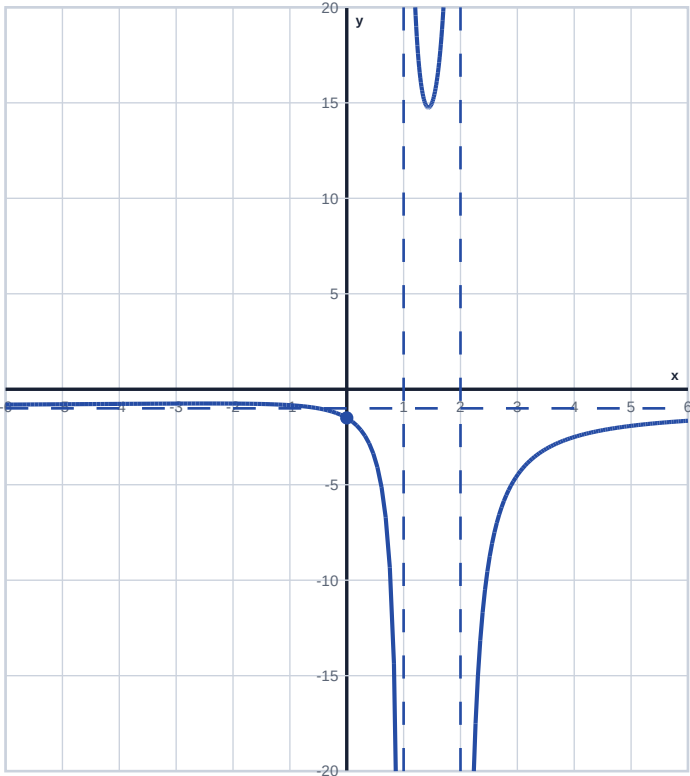


Graphing General Rational Functions
Answer Key

Factor when useful. Find the original domain exclusions, holes, intercepts and asymptotes, then graph each function on the blank grid.

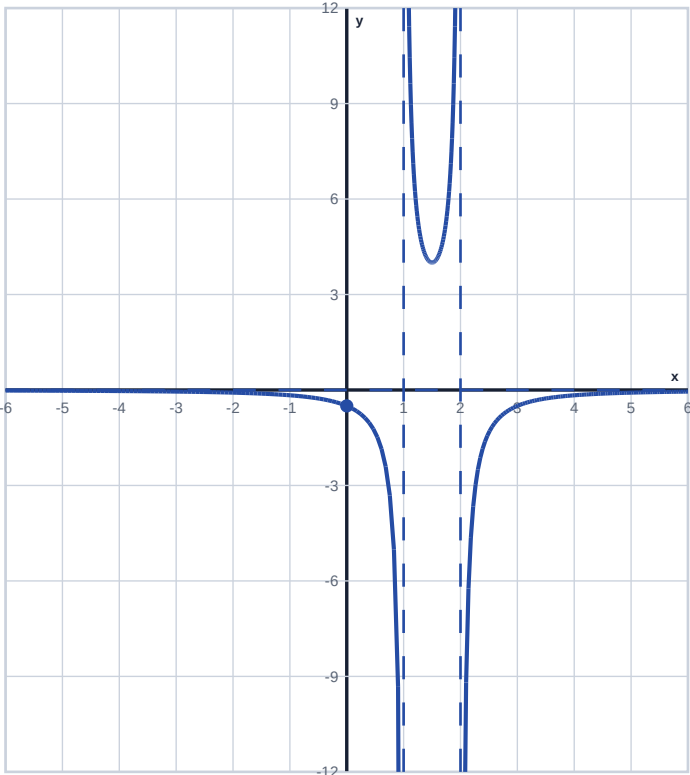
3. $f(x) = (-x^2 + x - 3)/(x^2 - 3x + 2)$

Original domain exclusions: $x = 1, x = 2$.
Reduced form: $f(x) = (-x^2 + x - 3)/(x^2 - 3x + 2)$.
Vertical asymptotes: $x = 1, x = 2$.
Holes: none.
 x -intercepts: none; y -intercept: $(0, -3/2)$.
Horizontal asymptote: $y = -1$.
Reference points: $(0, -3/2), (3/2, 15), (3, -9/2), (-1, -5/6)$.



4. $f(x) = (-1)/(x^2 - 3x + 2)$

Original domain exclusions: $x = 1, x = 2$.
Reduced form: $f(x) = (-1)/(x^2 - 3x + 2)$.
Vertical asymptotes: $x = 1, x = 2$.
Holes: none.
 x -intercepts: none; y -intercept: $(0, -1/2)$.
Horizontal asymptote: $y = 0$.
Reference points: $(0, -1/2), (3/2, 4), (3, -1/2), (-1, -1/6)$.



Math Sheet

Name _____ Score _____ Teacher _____ Date _____

Graphing General Rational Functions

Answer Key

Factor when useful. Find the original domain exclusions, holes, intercepts and asymptotes, then graph each function on the blank grid.

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

Original domain exclusions: $x = 1$.

Reduced form: $f(x) = (-x - 2)/(x^2 - 2x + 1)$.

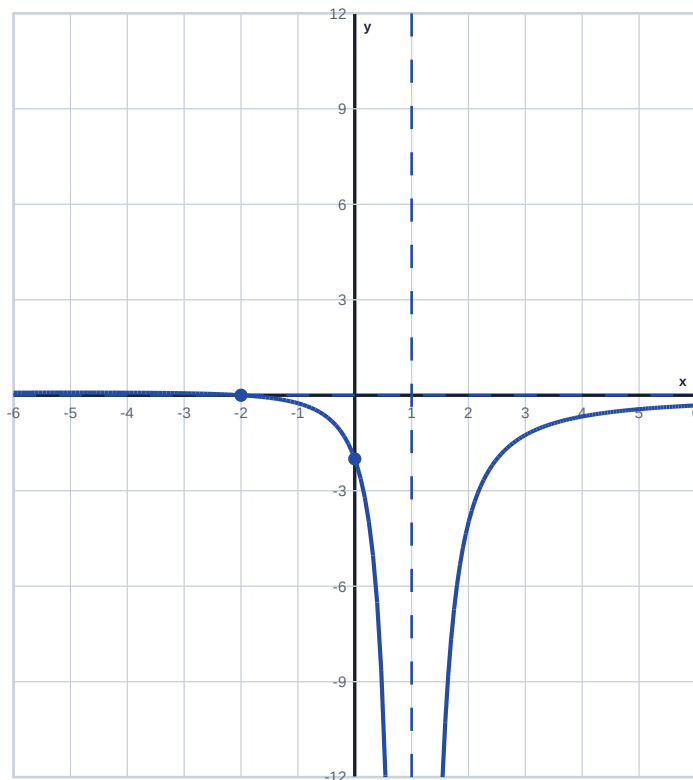
Vertical asymptotes: $x = 1$ (multiplicity 2).

Holes: none.

x-intercepts: $(-2, 0)$; y-intercept: $(0, -2)$.

Horizontal asymptote: $y = 0$.

Reference points: $(0, -2)$, $(2, -4)$, $(-1, -1/4)$, $(3, -5/4)$.



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

Original domain exclusions: $x = 1$.

Reduced form: $f(x) = (-1)/(x - 1)$.

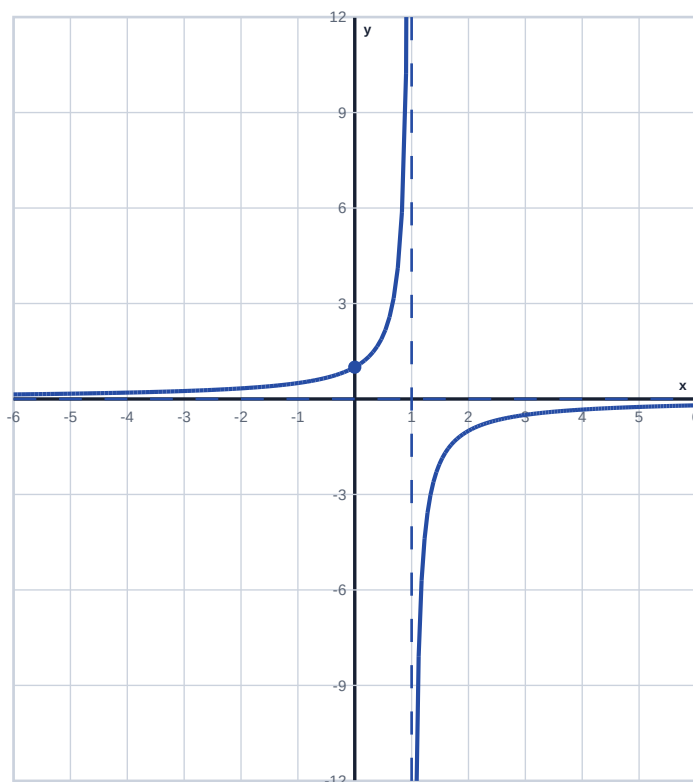
Vertical asymptotes: $x = 1$.

Holes: none.

x-intercepts: none; y-intercept: $(0, 1)$.

Horizontal asymptote: $y = 0$.

Reference points: $(0, 1)$, $(2, -1)$, $(-1, 1/2)$, $(3, -1/2)$.

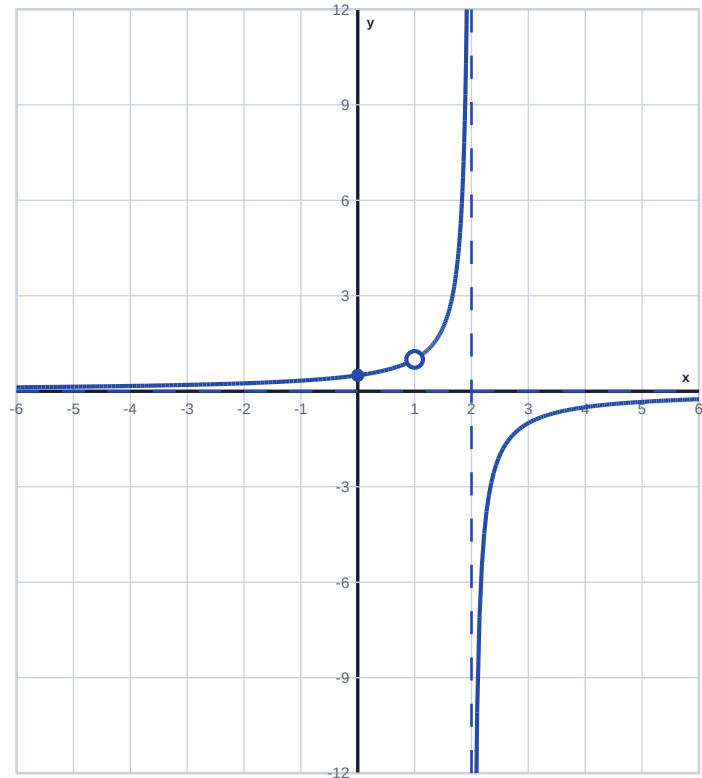


Graphing General Rational Functions
Answer Key

Factor when useful. Find the original domain exclusions, holes, intercepts and asymptotes, then graph each function on the blank grid.

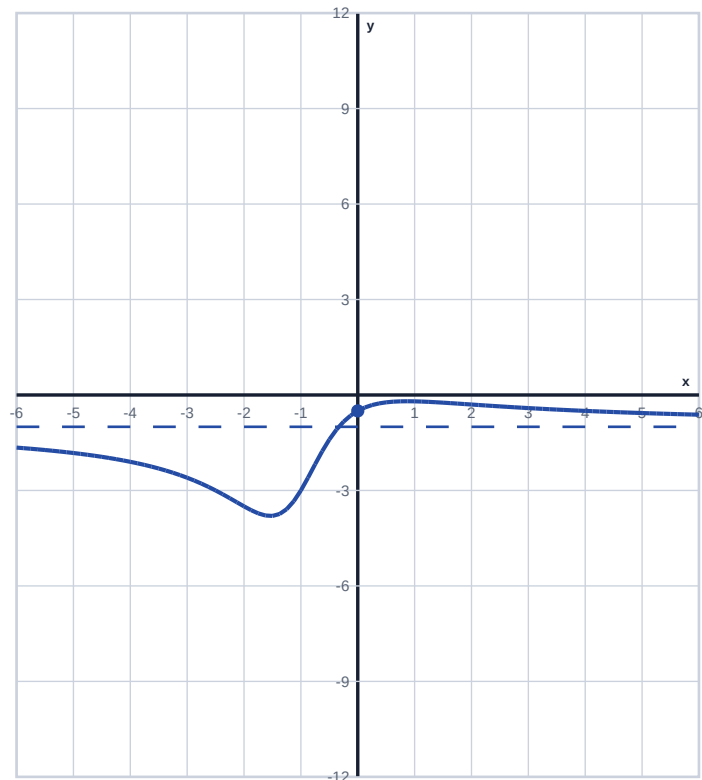
7. $f(x) = (-x + 1)/(x^2 - 3x + 2)$

Original domain exclusions: $x = 1, x = 2$.
Reduced form: $f(x) = (-1)/(x - 2)$.
Vertical asymptotes: $x = 2$.
Holes: $(1, 1)$.
 x -intercepts: none; y -intercept: $(0, 1/2)$.
Horizontal asymptote: $y = 0$.
Reference points: $(0, 1/2), (3/2, 2), (3, -1), (-1, 1/3)$.



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

Original domain exclusions: none.
Reduced form: $f(x) = (-x^2 + x - 1)/(x^2 + 2x + 2)$.
Vertical asymptotes: none.
Holes: none.
 x -intercepts: none; y -intercept: $(0, -1/2)$.
Horizontal asymptote: $y = -1$.
Reference points: $(0, -1/2), (-1, -3), (1, -1/5), (-2, -7/2)$.

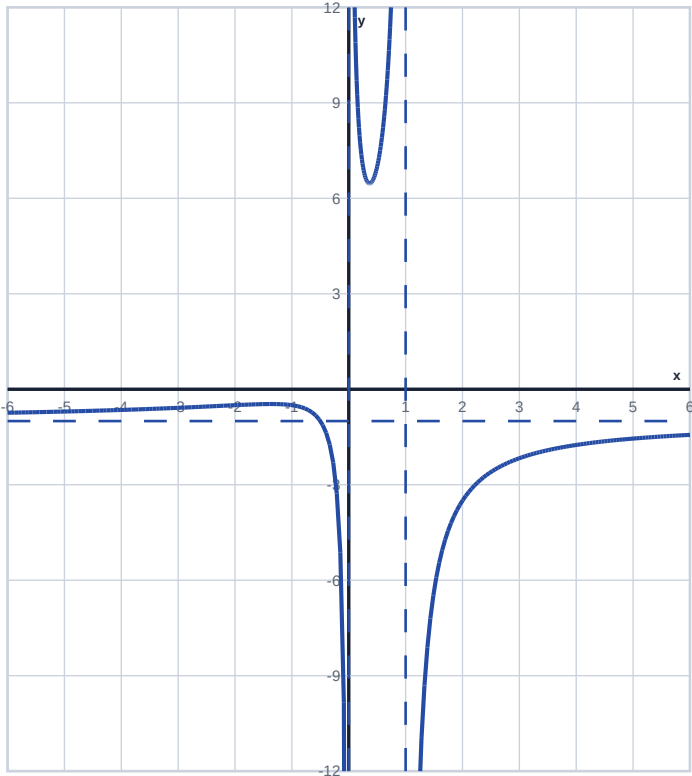


Graphing General Rational Functions
Answer Key

Factor when useful. Find the original domain exclusions, holes, intercepts and asymptotes, then graph each function on the blank grid.

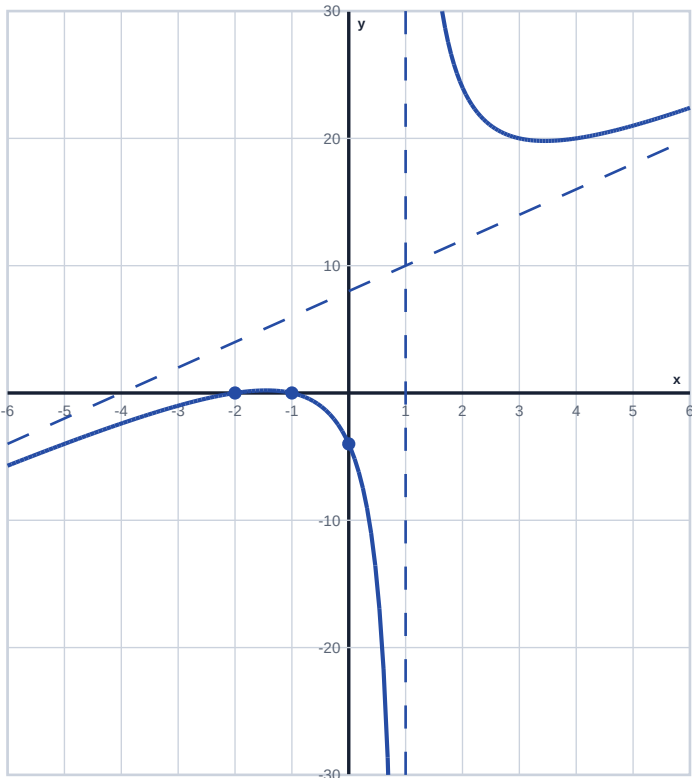
9. $f(x) = (-x^2 - x - 1)/(x^2 - x)$

Original domain exclusions: $x = 0, x = 1$.
Reduced form: $f(x) = (-x^2 - x - 1)/(x^2 - x)$.
Vertical asymptotes: $x = 0, x = 1$.
Holes: none.
 x -intercepts: none; y -intercept: undefined.
Horizontal asymptote: $y = -1$.
Reference points: $(-1, -1/2), (1/2, 7), (2, -7/2), (-2, -1/2)$.



10. $f(x) = (2x^2 + 6x + 4)/(x - 1)$

Original domain exclusions: $x = 1$.
Reduced form: $f(x) = (2x^2 + 6x + 4)/(x - 1)$.
Vertical asymptotes: $x = 1$.
Holes: none.
 x -intercepts: $(-2, 0), (-1, 0)$; y -intercept: $(0, -4)$.
Slant asymptote: $y = 2x + 8$.
Reference points: $(0, -4), (2, 24), (-1, 0), (3, 20)$.

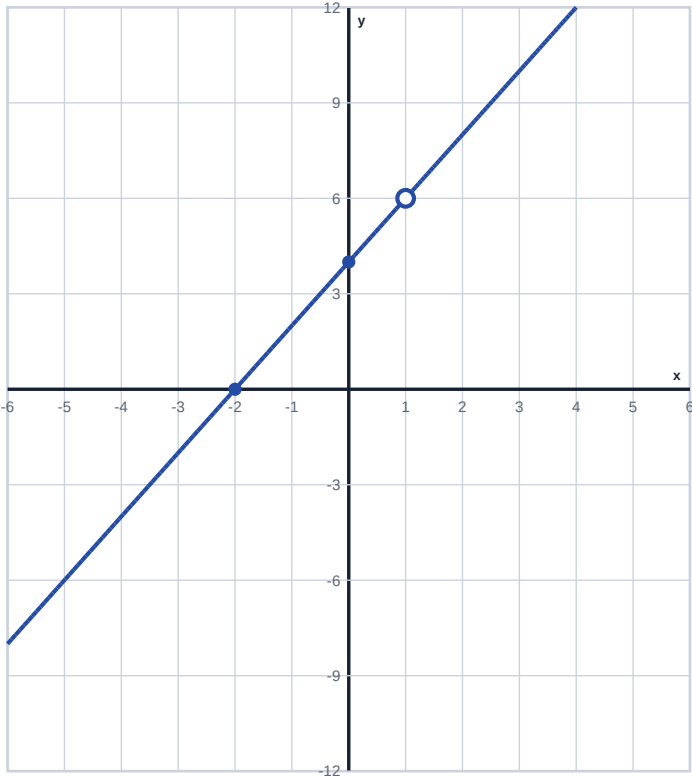


Graphing General Rational Functions
Answer Key

Factor when useful. Find the original domain exclusions, holes, intercepts and asymptotes, then graph each function on the blank grid.

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

Original domain exclusions: $x = 1$.
Reduced form: $f(x) = 2x + 4$.
Vertical asymptotes: none.
Holes: $(1, 6)$.
 x -intercepts: $(-2, 0)$; y -intercept: $(0, 4)$.
Reduced graph: $y = 2x + 4$ (with original holes).
Reference points: $(0, 4)$, $(2, 8)$, $(-1, 2)$, $(3, 10)$.
Polynomial division quotient: $2x + 4$. No separate asymptote is added.



12. $f(x) = (2x^2 - 2x + 6)/(x^2 - 3x + 2)$

Original domain exclusions: $x = 1$, $x = 2$.
Reduced form: $f(x) = (2x^2 - 2x + 6)/(x^2 - 3x + 2)$.
Vertical asymptotes: $x = 1$, $x = 2$.
Holes: none.
 x -intercepts: none; y -intercept: $(0, 3)$.
Horizontal asymptote: $y = 2$.
Reference points: $(0, 3)$, $(3/2, -30)$, $(3, 9)$, $(-1, 5/3)$.

