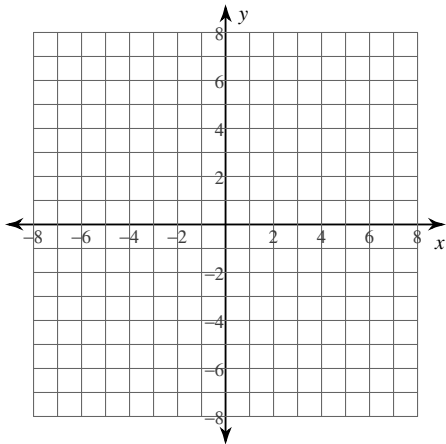


Graphing Rational Function Practice

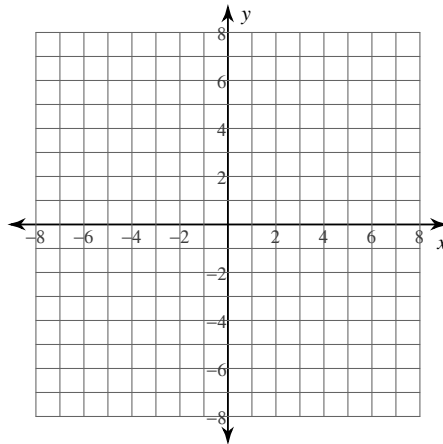
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Identify the holes, vertical asymptotes, x-intercepts, horizontal asymptote, and domain of each. Then sketch the graph.

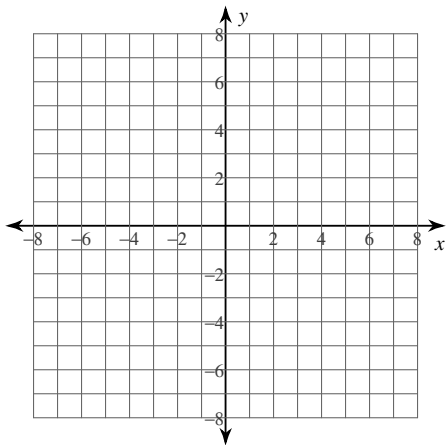
$$1) f(x) = \frac{x^2 + 4x + 3}{-3x - 12}$$



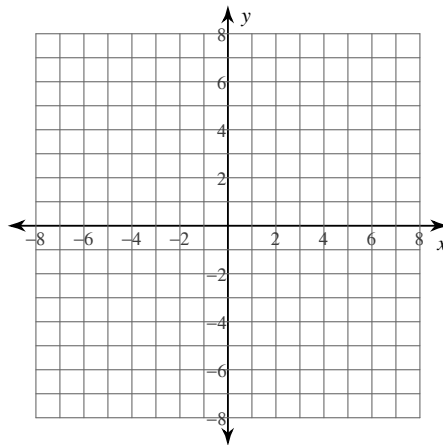
$$2) f(x) = \frac{x^2 - x - 12}{4x + 16}$$



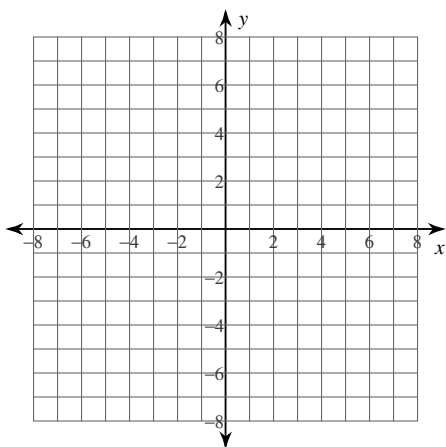
$$3) f(x) = \frac{1}{2x^2 - 2x - 4}$$



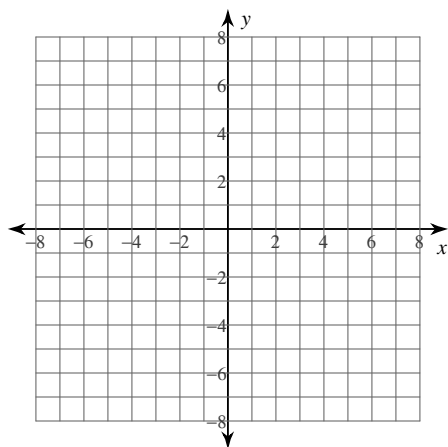
$$4) f(x) = \frac{x^2 - 1}{2x^2 + 4x - 6}$$



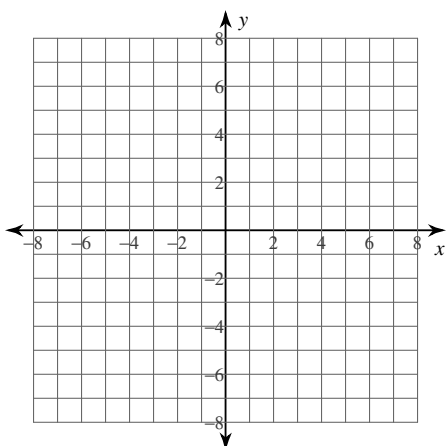
$$5) f(x) = \frac{x+2}{-x^2+2x+3}$$



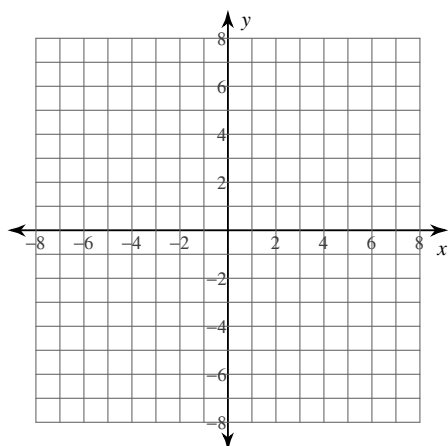
$$6) f(x) = \frac{-2x^3+2x^2+4x}{x^3-4x}$$



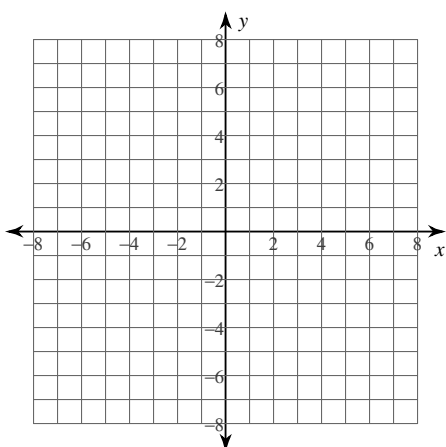
$$7) f(x) = \frac{x^3+2x^2-3x}{-3x^3+3x^2+6x}$$



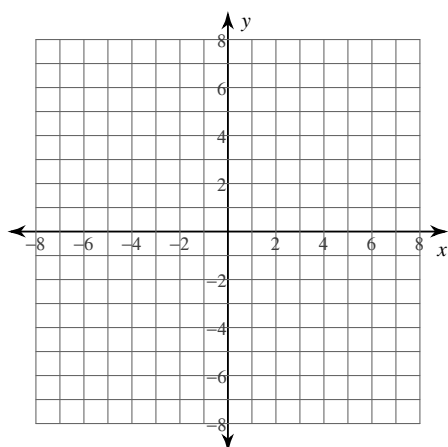
$$8) f(x) = \frac{x^2-16}{x^2-x-12}$$



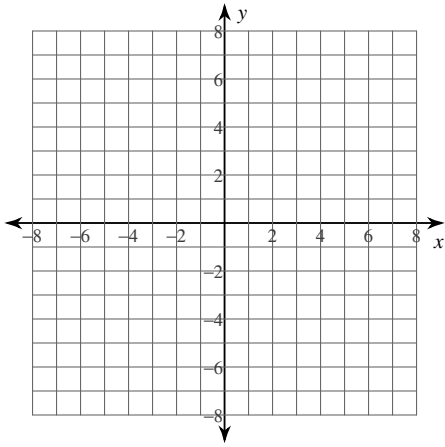
$$9) f(x) = \frac{-x-2}{x^2+3x+2}$$



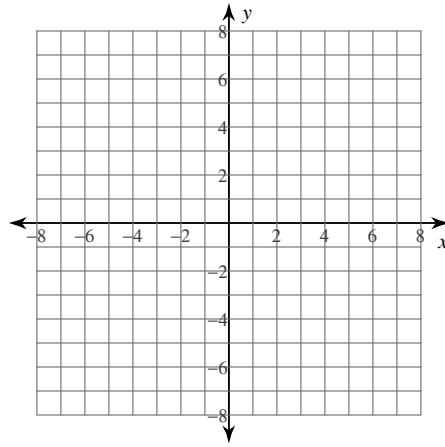
$$10) f(x) = \frac{x^2+x-6}{3x^2-3x-18}$$



$$11) f(x) = \frac{x-4}{-3x}$$



$$12) f(x) = \frac{x^2 - 4x}{-4x^2 - 8x}$$

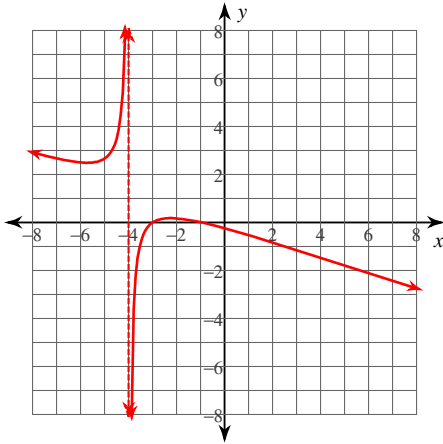


Graphing Rational Function Practice

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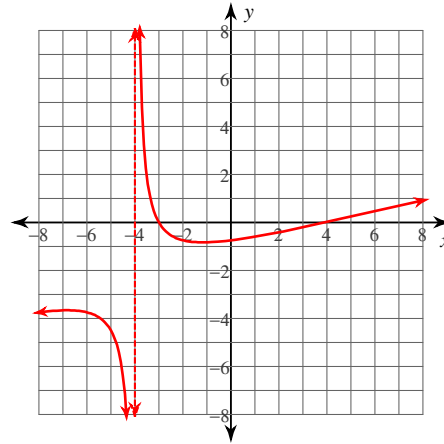
Identify the holes, vertical asymptotes, x-intercepts, horizontal asymptote, and domain of each. Then sketch the graph.

$$1) f(x) = \frac{x^2 + 4x + 3}{-3x - 12}$$



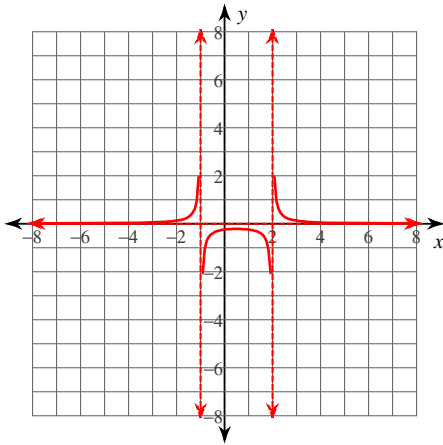
Vertical Asym.: $x = -4$
 Holes: None
 Horz. Asym.: None
 X-intercepts: $-3, -1$
 Domain:
 All reals except -4

$$2) f(x) = \frac{x^2 - x - 12}{4x + 16}$$



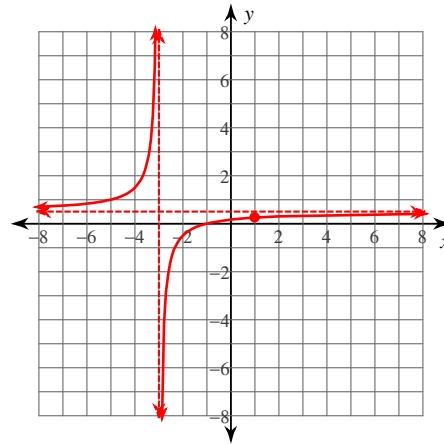
Vertical Asym.: $x = -4$
 Holes: None
 Horz. Asym.: None
 X-intercepts: $4, -3$
 Domain:
 All reals except -4

$$3) f(x) = \frac{1}{2x^2 - 2x - 4}$$



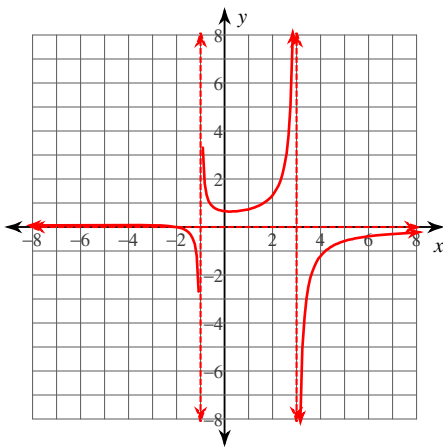
Vertical Asym.: $x = 2, x = -1$
 Holes: None
 Horz. Asym.: $y = 0$
 X-intercepts: None
 Domain:
 All reals except $2, -1$

$$4) f(x) = \frac{x^2 - 1}{2x^2 + 4x - 6}$$



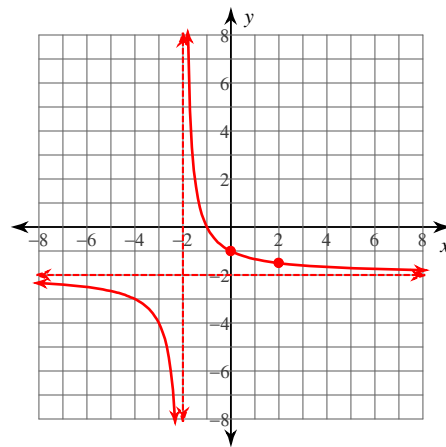
Vertical Asym.: $x = -3$
 Holes: $x = 1$
 Horz. Asym.: $y = \frac{1}{2}$
 X-intercepts: -1
 Domain:
 All reals except $-3, 1$

$$5) f(x) = \frac{x+2}{-x^2+2x+3}$$



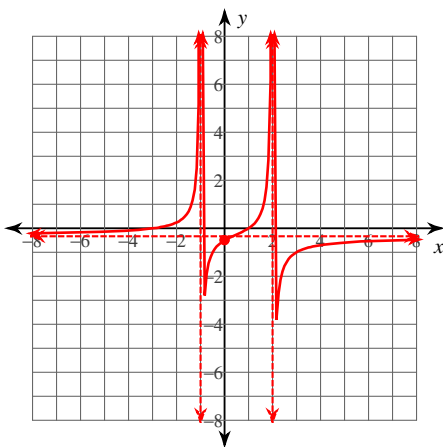
Vertical Asym.: $x=3, x=-1$
 Holes: None
 Horz. Asym.: $y=0$
 X-intercepts: -2
 Domain:
 All reals except $3, -1$

$$6) f(x) = \frac{-2x^3+2x^2+4x}{x^3-4x}$$



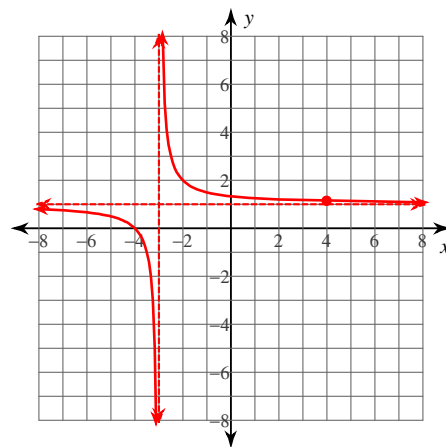
Vertical Asym.: $x=-2$
 Holes: $x=0, x=2$
 Horz. Asym.: $y=-2$
 X-intercepts: -1
 Domain:
 All reals except $-2, 0, 2$

$$7) f(x) = \frac{x^3+2x^2-3x}{-3x^3+3x^2+6x}$$



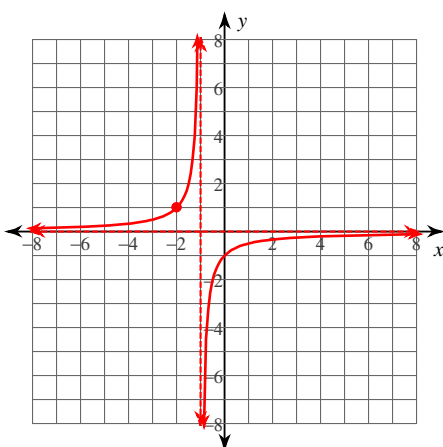
Vertical Asym.: $x=2, x=-1$
 Holes: $x=0$
 Horz. Asym.: $y=-\frac{1}{3}$
 X-intercepts: $1, -3$
 Domain:
 All reals except $2, -1, 0$

$$8) f(x) = \frac{x^2-16}{x^2-x-12}$$



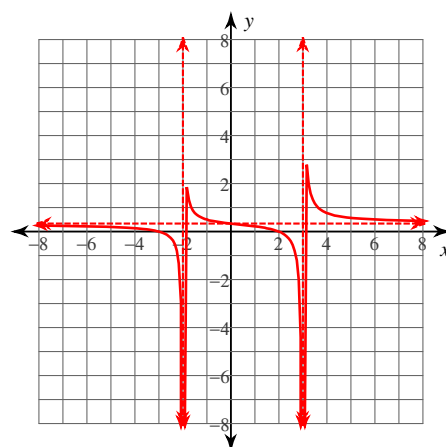
Vertical Asym.: $x=-3$
 Holes: $x=4$
 Horz. Asym.: $y=1$
 X-intercepts: -4
 Domain:
 All reals except $-3, 4$

$$9) f(x) = \frac{-x-2}{x^2+3x+2}$$



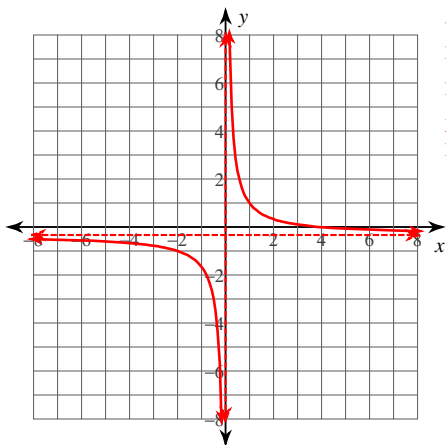
Vertical Asym.: $x=-1$
 Holes: $x=-2$
 Horz. Asym.: $y=0$
 X-intercepts: None
 Domain:
 All reals except $-1, -2$

$$10) f(x) = \frac{x^2+x-6}{3x^2-3x-18}$$



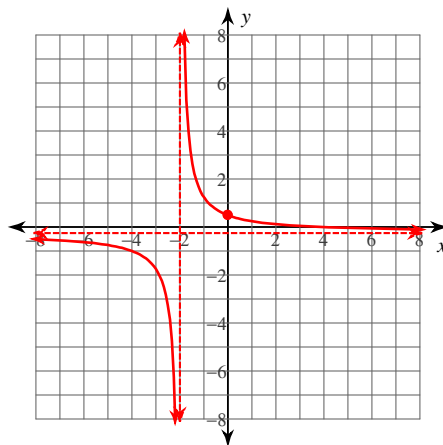
Vertical Asym.: $x=3, x=-2$
 Holes: None
 Horz. Asym.: $y=\frac{1}{3}$
 X-intercepts: $2, -3$
 Domain:
 All reals except $3, -2$

$$11) f(x) = \frac{x-4}{-3x}$$



Vertical Asym.: $x = 0$
 Holes: None
 Horz. Asym.: $y = -\frac{1}{3}$
 X-intercepts: 4
 Domain:
 All reals except 0

$$12) f(x) = \frac{x^2 - 4x}{-4x^2 - 8x}$$



Vertical Asym.: $x = -2$
 Holes: $x = 0$
 Horz. Asym.: $y = -\frac{1}{4}$
 X-intercepts: 4
 Domain:
 All reals except $-2, 0$