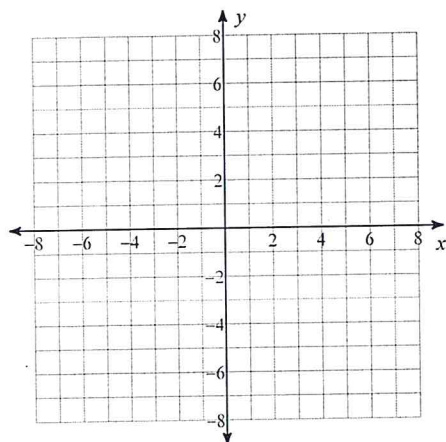


Even More Graphing - Yea!!

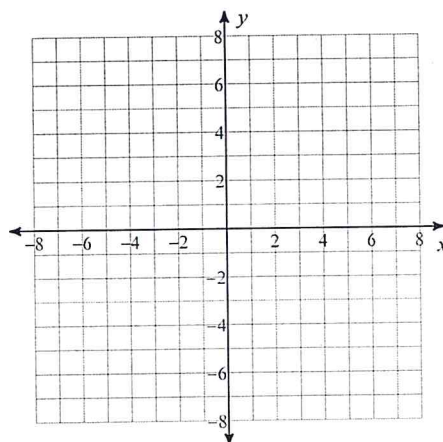
Date _____

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

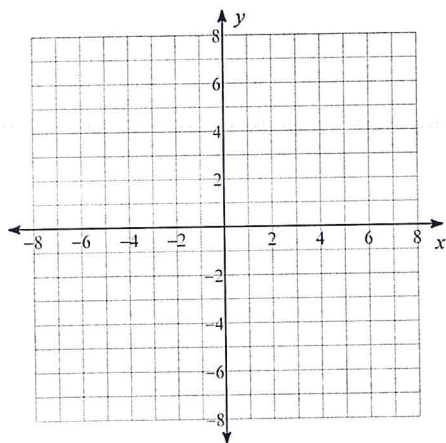
$$1) f(x) = \frac{x^2 + x - 6}{4x - 12}$$



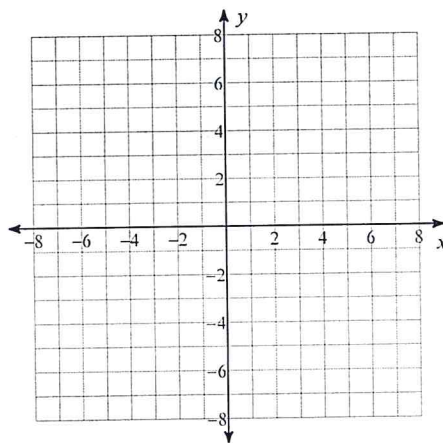
$$2) f(x) = \frac{x^2 + 3x}{x^2 - x - 2}$$



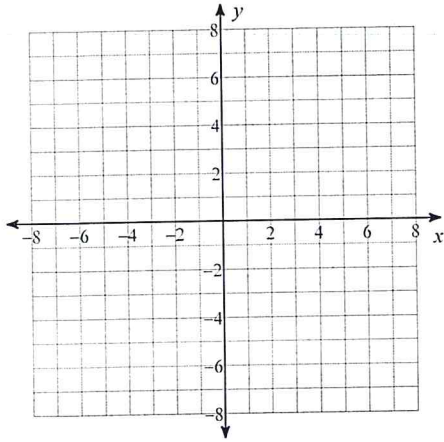
$$3) f(x) = \frac{x + 3}{-2x^3 - 2x^2 + 12x}$$



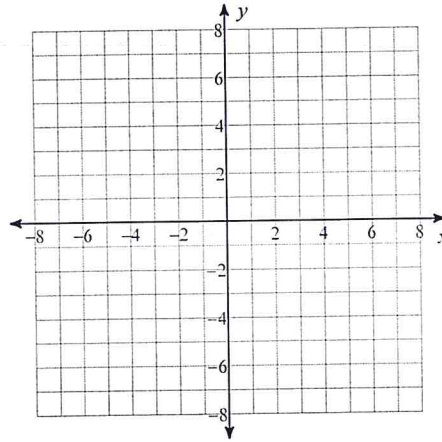
$$4) f(x) = \frac{x^2 - 5x + 6}{-4x + 16}$$



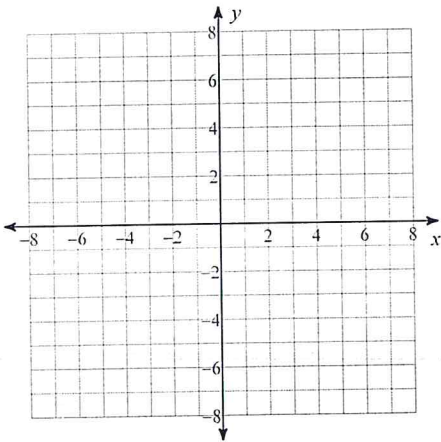
$$5) f(x) = \frac{x+1}{x+3}$$



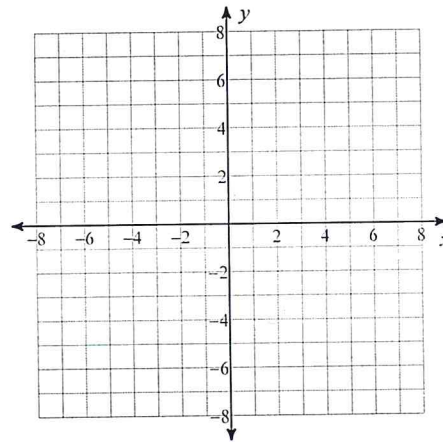
$$6) f(x) = \frac{x^3 + 6x^2 + 8x}{-4x^2 - 4x + 24}$$



$$7) f(x) = \frac{x^2 + x - 12}{-4x - 8}$$



$$8) f(x) = \frac{x^3 - 3x^2 - 4x}{4x^2 - 12x}$$



Factor each completely. You need to remember this for tomorrow!

$$9) 2x^2 - 17x + 35$$

$$10) 5x^2 - 36x - 81$$

$$11) 3n^2 + 22n + 7$$

$$12) 7a^2 + 53a + 28$$

Simplify each expression. Also for tomorrow...

$$13) \frac{5v}{3u} + \frac{3u}{6}$$

$$14) \frac{4}{2} + \frac{3x}{2x}$$

$$15) \frac{4a-b}{3a} + \frac{6}{3b}$$

$$16) \frac{5}{5m} + \frac{4m}{5}$$

$$17) \frac{6p}{4} + \frac{p-4}{p+5}$$

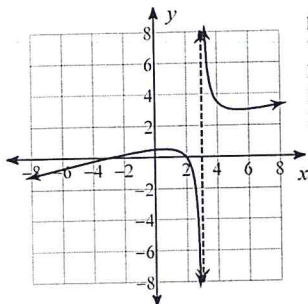
$$18) \frac{4}{x-5} + \frac{4x}{x-3}$$

$$19) \frac{x+2}{x+3} + \frac{6x}{2}$$

$$20) \frac{2}{3b} - \frac{6b+3}{3b^2+9b}$$

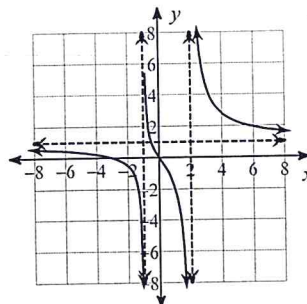
Answers to Even More Graphing - Yea!!

1)



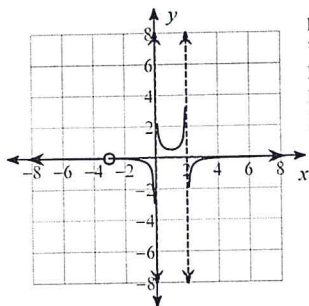
Discontinuities: 3
Vertical Asym.: $x = 3$
Holes: None
Horz. Asym.: None
X-intercepts: 2, -3

2)



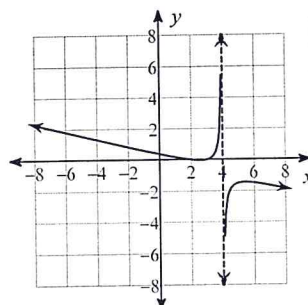
Discontinuities: 2, -1
Vertical Asym.: $x = 2, x = -1$
Holes: None
Horz. Asym.: $y = 1$
X-intercepts: 0, -3

3)



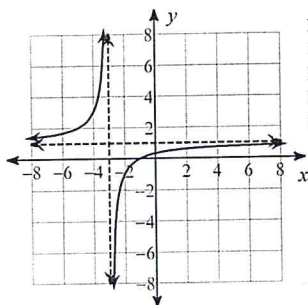
Discontinuities: 0, 2, -3
Vertical Asym.: $x = 0, x = 2$
Holes: $x = -3$
Horz. Asym.: $y = 0$
X-intercepts: None

4)



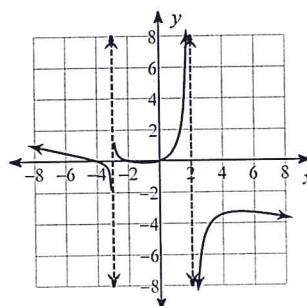
Discontinuities: 4
Vertical Asym.: $x = 4$
Holes: None
Horz. Asym.: None
X-intercepts: 3, 2

5)



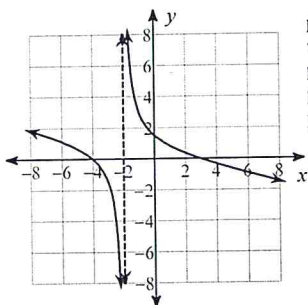
Discontinuities: -3
Vertical Asym.: $x = -3$
Holes: None
Horz. Asym.: $y = 1$
X-intercepts: -1

6)



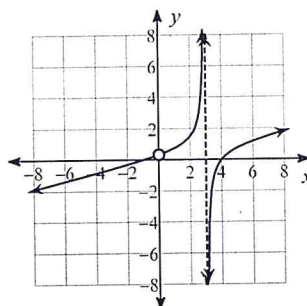
Discontinuities: 2, -3
Vertical Asym.: $x = 2, x = -3$
Holes: None
Horz. Asym.: None
X-intercepts: 0, -4, -2

7)



Discontinuities: -2
Vertical Asym.: $x = -2$
Holes: None
Horz. Asym.: None
X-intercepts: 3, -4

8)



Discontinuities: 3, 0
Vertical Asym.: $x = 3$
Holes: $x = 0$
Horz. Asym.: None
X-intercepts: 4, -1

9) $(2x - 7)(x - 5)$

10) $(5x + 9)(x - 9)$

11) $(3n + 1)(n + 7)$

12) $(7a + 4)(a + 7)$

13) $\frac{10v + 3u^2}{6u}$

14) $\frac{7}{2}$

15) $\frac{4ba - b^2 + 6a}{3ab}$

16) $\frac{5 + 4m^2}{5m}$

17) $\frac{3p^2 + 17p - 8}{2(p + 5)}$

18) $\frac{-16x - 12 + 4x^2}{(x - 5)(x - 3)}$

19) $\frac{3x^2 + 10x + 2}{x + 3}$

20) $\frac{-4b + 3}{3b(b + 3)}$