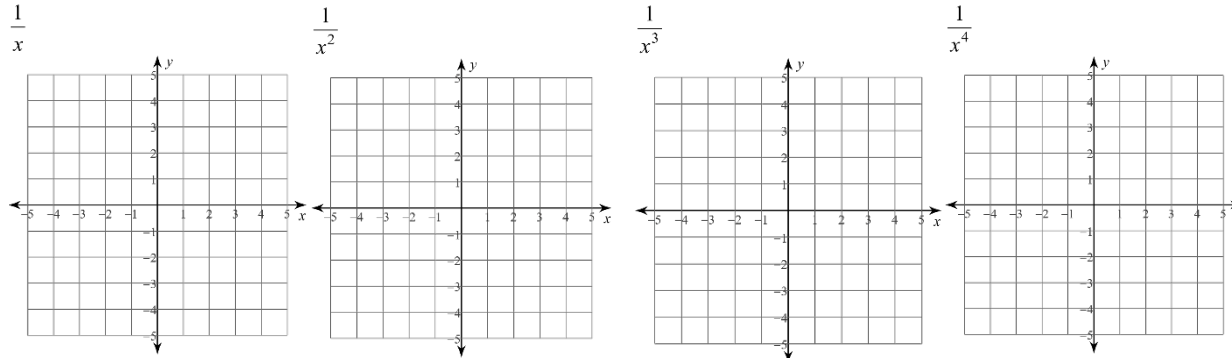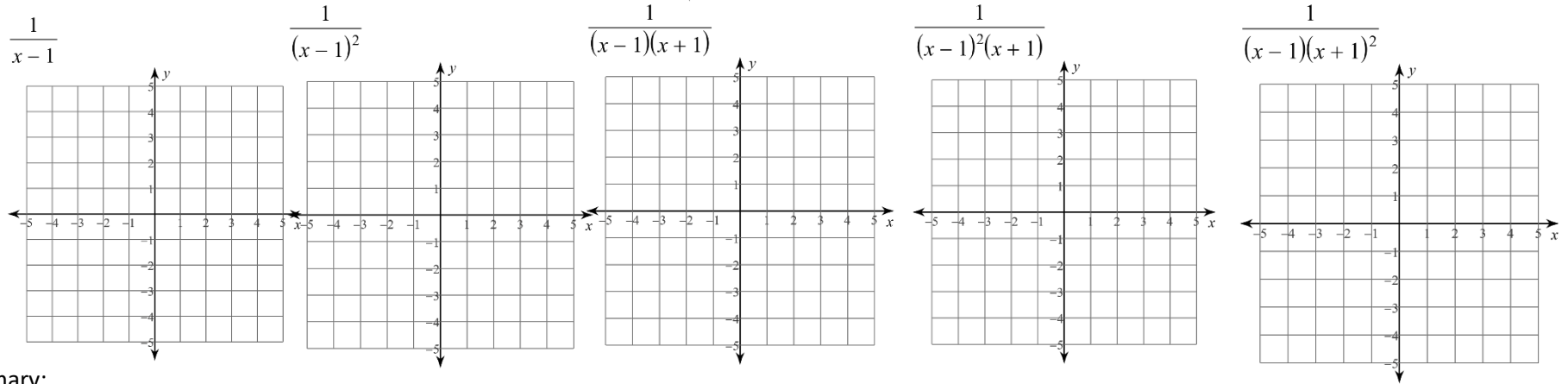# Graphing Rational Functions Exploration (with calculator)

Name_____ Period_____

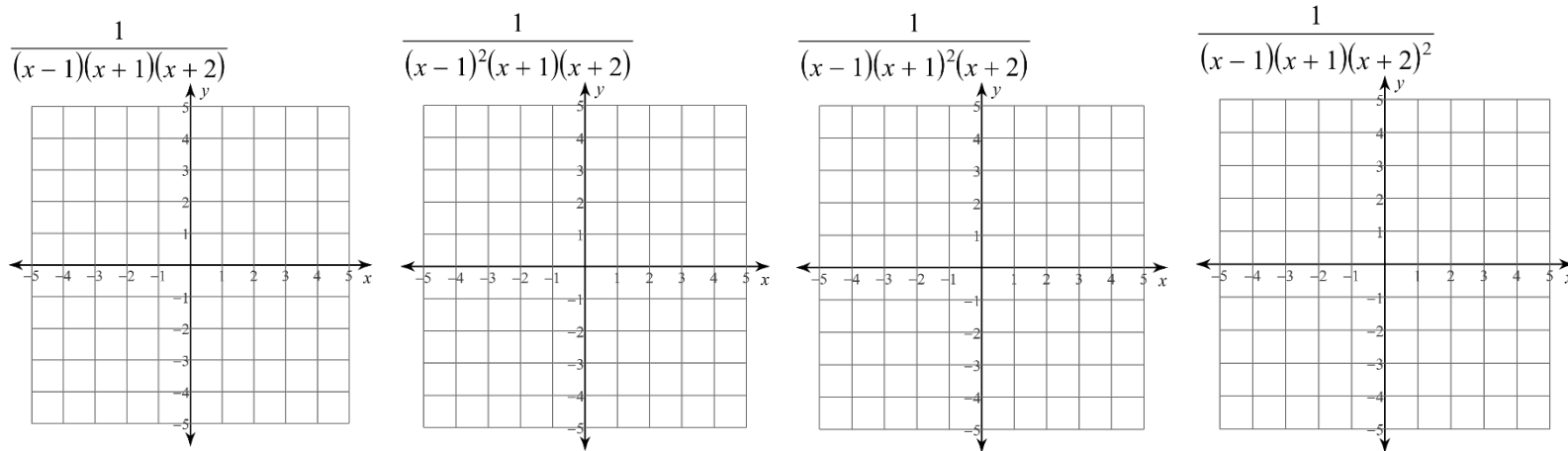A $\quad \dfrac{1}{x}$ $\qquad\qquad\qquad \dfrac{1}{x^2}$ $\qquad\qquad\qquad \dfrac{1}{x^3}$ $\qquad\qquad\qquad \dfrac{1}{x^4}$ $\qquad\qquad$ Summary:

B $\quad \dfrac{1}{x-1}$ $\qquad\qquad \dfrac{1}{(x-1)^2}$ $\qquad\qquad \dfrac{1}{(x-1)(x+1)}$ $\qquad\qquad \dfrac{1}{(x-1)^2(x+1)}$ $\qquad\qquad \dfrac{1}{(x-1)(x+1)^2}$

Summary:

C $\quad \dfrac{1}{(x-1)(x+1)(x+2)}$ $\qquad\qquad \dfrac{1}{(x-1)^2(x+1)(x+2)}$ $\qquad\qquad \dfrac{1}{(x-1)(x+1)^2(x+2)}$ $\qquad\qquad \dfrac{1}{(x-1)(x+1)(x+2)^2}$
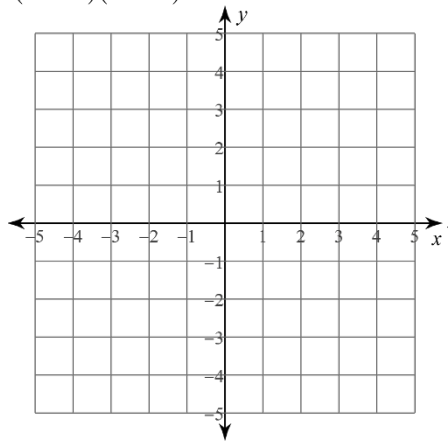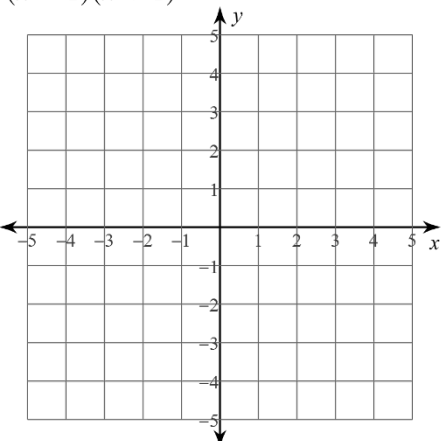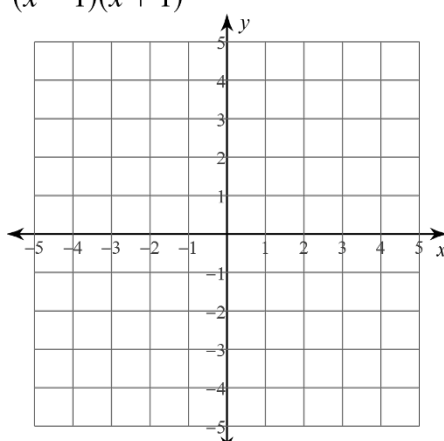
Summary:
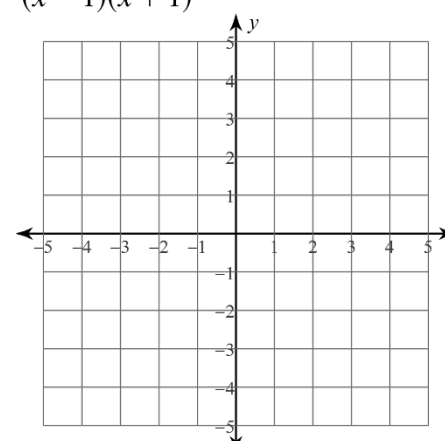
D

$$\frac{1}{(x-1)(x+1)}$$
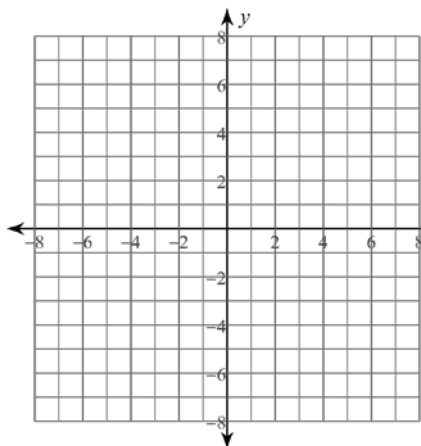
$$\frac{x-1}{(x-1)(x+1)}$$

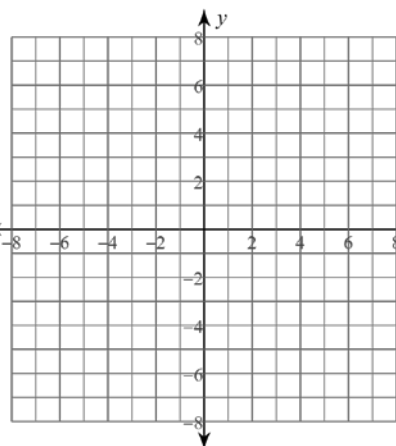$$\frac{(x-2)^2}{(x-1)(x+1)}$$

$$\frac{(x-2)(x+2)}{(x-1)(x+1)}$$

Summary:
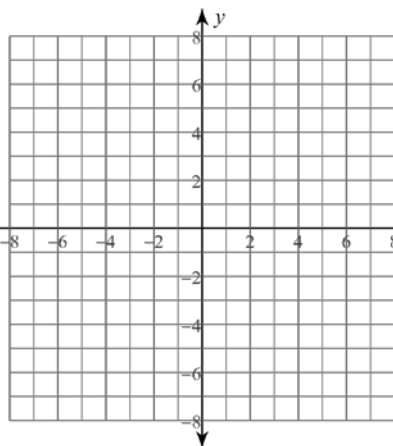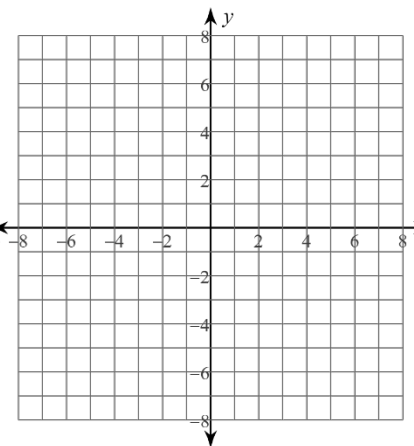
E

$$\frac{(x+1)(x+4)}{(x-5)(x+1)(x+2)}$$

$$\frac{(x+1)(x+6)}{x+2}$$

$$\frac{-x+2}{(x+1)(x+5)}$$

$x^3 - 6x^2 - x + 30$; given factor: $x - 5$
(long division)

Summary: