Name:_____   Date:_____

Math 10/11 Enriched: Section 5a Non Permissible Values:

1. Find the non-permissible value(s) for each of the following expressions:

a) $\dfrac{2x}{3(x-1)(3x+4)}$ NPV:	b) $\dfrac{3x^3-2}{x^2-6x-16}$ NPV:	c) $\dfrac{x+3}{x^3-27}$ NPV:
d) $\dfrac{3x+10}{x^3+10x}$ NPV:	e) $\dfrac{3+2x}{\sqrt{3x+12}}$ NPV:	f) $\dfrac{3x}{2}-\dfrac{6}{2x^2-1}$ NPV:
g) $\dfrac{12x^3}{2^{2x}-16}$ NPV:	h) $\dfrac{8x^3-2x}{5x\left(x^4-13x^2+36\right)}$ NPV:	i) $\dfrac{\frac{2}{2x}-3}{9-\frac{x}{3}}$ NPV:
j) $\dfrac{2x-3}{x+2}\div\dfrac{3x+4}{x^2-9}$ NPV:	k) $\dfrac{x+14}{x^2-16}\div\dfrac{x^2-5x+14}{x^2-2x+8}$ NPV:	L) $\dfrac{\frac{2}{x}-\frac{3}{x+2}}{\frac{1}{x-2}-\frac{x}{x-1}}$ NPV:

2. Add or Subtract each of the following expressions below. State all the NPV's

a) $\dfrac{2}{x+5}+\dfrac{3}{x+2}$	b) $\dfrac{x-2}{x+2}+\dfrac{x+1}{x-4}$
c) $\dfrac{3}{x-1}-\dfrac{2}{2-x}$	d) $\dfrac{5x}{3x+9}-\dfrac{9x}{2x+6}$

e) $\dfrac{2}{x-2}+\dfrac{2x}{2-x}+\dfrac{x+2}{x-2}$	f) $\dfrac{4x^2-20x}{x^2+2x-35}+\dfrac{3x-6}{x^2-12x+20}$
g) $\dfrac{a}{a+b}-\dfrac{b}{b-a}+\dfrac{2ab}{a^2-b^2}$	h) $\dfrac{2x-6}{x^2-5x+6}-\dfrac{3x-12}{x^2-x-12}$
i) $\dfrac{2x}{3x^2-11x+6}-\dfrac{3x-12}{3x^2-14x+8}$	j) $\dfrac{2x}{3-x}-\dfrac{3x}{x+3}+\dfrac{2}{x^2-9}$

3. Multiply or Divide each of the following expressions below. State all the NPV's

a) $\dfrac{(2x)^2}{5y}\times\dfrac{10x}{8y}\div\dfrac{15x}{(4y)^2}$	b) $\dfrac{15x}{2x+6}\div\dfrac{10x}{3x+9}$
c) $\dfrac{(x+1)^2}{x^2-1}\times\dfrac{x^2-4}{x^2+3x+2}$	d) $\dfrac{x^2+5x+6}{x^2-5x+6}\div\dfrac{x^2-x-6}{x^2+x-6}$

e) $\dfrac{x^2-16y^2}{6x^2y} \div \dfrac{x^2+xy-20y^2}{4x^3y^2}$

f) $\dfrac{x^2+4x-5}{3x-6} \times \dfrac{x-2}{1-x} =$

g) $\dfrac{m^2-9mn+14n^2}{m^2+7mn+12n^2} \div \dfrac{3m^2-21mn}{4m^3+16m^2n}$

h) $\dfrac{3x^2+3x-6}{x^2y-7xy} \times \dfrac{x^2y-13xy+42y}{6x^2+12x}$

i) $\dfrac{x+2y}{x-3y} \times \dfrac{x^2-9y^2}{x^2-4y^2} \div \dfrac{x+3y}{x-2y}$

j) $\dfrac{(3a+7b)^2}{2a-5b} \times \dfrac{4a^2-25b^2}{9a^2-49b^2} \div \dfrac{2a+5b}{3a-7b}$

4. Simplify: $\dfrac{\dfrac{x-2}{2x}+\dfrac{1}{x+2}}{\dfrac{3}{2}-\dfrac{6}{x^2+2x}}$

5. How many ordered pairs (a,b), where "a" and "b" are positive integers and a>b, satisfy the equation:
$$\frac{1}{a}+\frac{1}{b}=\frac{1}{8}?$$

6. Simplify and find all the NPV's: $\dfrac{y+\dfrac{2y}{y+2}}{1+\dfrac{4}{y^2-4}}$

7. The average speed of an airplane is five times as fast as the average speed of a train. To travel 2000km, the train requires 20h more than the airplane. Determine the average speeds of the train and the airplane

8. The average speed of an express train is 40km/h faster than the average speed of a bus. To travel 1200km, the bus requires 50% more time than the train. Determine the average speeds of the bus and the train.

9. Bob flew her airplane 500km against the wind in the same time that it took her to fly it 600km with the wind. If wind speed was 20km/h, what was the average speed of the plane?