Pre-Calc 11 Name: _____

Block: _____

Unit 6 Review

*Calculators are not permitted.

Rational Expressions

1. Simplify and identify the non-permissible values.

(a) $\frac{2x+16}{x^2-64}$

(b) $\frac{x^2+x-2}{-2x^2-4x+6}$

2. Multiply or divide and simplify completely. Identify the non-permissible values.

(a) $\frac{25ab^2}{4b} \cdot \frac{10b^3}{5a}$

(b) $\frac{6y^2}{y^2-9} \cdot \frac{y+3}{15y}$

(c) $\frac{n-2}{n} \div \frac{3n-6}{n^2+n}$

(d) $\frac{b^2+4b+3}{3-b} \div \frac{b^2+2b+1}{b^2-9}$

3. Add or subtract and simplify completely. Identify the non-permissible values.

(a) $\frac{3x+7}{x+2} - \frac{2x+3}{x+2}$

(b) $\frac{a+2}{2} + \frac{3a-1}{5} - \frac{2a+7}{10}$

(c) $\frac{6}{x^3} + \frac{5}{2x^4}$

(d) $-\frac{8}{3ef} - \frac{2}{4f} + \frac{5}{2e^2}$

(e) $\frac{6}{v-2} + \frac{7}{2v+7}$

(f) $\frac{2x}{x^2-6x+5} - \frac{3}{x^2-5x}$

Rational Equations

4. Solve each equation. Remember to check for extraneous solutions!

(a) $\frac{3x+3}{4} - \frac{x}{3} = \frac{x+1}{2}$

(b) $\frac{3}{5f} = 1 - \frac{7}{2f}$

(c) $\frac{4}{5x-2} = \frac{3}{4x-1}$

(d) $\frac{2p}{p-1} + \frac{p-5}{p^2-1} = 1$

(e) $\frac{x}{4} - \frac{4x+2}{2x+6} = \frac{5}{x+3}$

(f) $\frac{2}{x^2-16} = \frac{3}{x^2-x-12}$

Answers

1. (a) $\frac{2}{x-8}$; $x \neq 8, -8$ (b) $-\frac{x+2}{2(x+3)}$; $x \neq -3, 1$

2. (a) $\frac{25b^4}{2}$; $a \neq 0, b \neq 0$ (b) $\frac{2y}{5(y-3)}$; $y \neq -3, 0, 3$ (c) $\frac{n+1}{3}$; $n \neq -1, 0, 2$ (d) $-\frac{(b+3)^2}{b+1}$; $b \neq -3, -1, 3$

3. (a) $\frac{x+4}{x+2}$; $x \neq -2$ (b) $\frac{9a+1}{10}$ (c) $\frac{12x+5}{2x^4}$; $x \neq 0$

(d) $\frac{-16e-3e^2+15f}{6e^2f}$; $e \neq 0, f \neq 0$ (e) $\frac{19v+28}{(v-2)(2v+7)}$; $v \neq -\frac{7}{2}, 2$ (f) $\frac{2x^2-3x+3}{x(x-5)(x-1)}$; $x \neq 0, 1, 5$

4. (a) $x = 3$ (b) $f = \frac{41}{10}$; $f \neq 0$ (c) $x = -2$; $x \neq \frac{1}{4}, \frac{2}{5}$

(d) $p = -4$ ($p = 1$ is extraneous) ; $p \neq \pm 1$ (e) $x = 8$ ($x = -3$ is extraneous) ; $x \neq -3$

(f) $x = -6$; $x \neq -3, \pm 4$