Algebra II
Review Sections 9-1 & 9-2
(emphasis on 9-2)

Name KEY

Name the undefined values for each problem. Remember, when in doubt...

1) $\frac{1}{x}+\frac{2}{x-8}$ $x \neq 0, 8$

2) $\frac{x}{2x+5}-\frac{4}{x+2}$ $x \neq -\frac{5}{2}, -2$

3) $\frac{3}{x^2-9}+\frac{3}{5}$ $(x-3)(x+3)$ $x \neq \pm 3$

4) $\frac{x-1}{x^2+5x-14}-\frac{6x}{5x-10}$ $(x+7)(x-2)$ $5(x-2)$ $x \neq -7, 2$

Simplify each expression. Remember...

Mult & Div.	Add & Subt.
1) factor	1) factor
2) cancel	2) find common denom.s
3) mult. across	3) simplify numerator
	4) check to see if numerator factors again
	5) write denominator for final answer

5) $\frac{-2w^1y}{15xz^5} \cdot \frac{25x^5}{14w^2y^2}$

$= -\frac{5wx^2}{21yz^5}$

6) $\frac{3}{x}+\frac{5}{y}$ (y) (x)

$= \frac{3y}{xy}+\frac{5x}{xy}$

$= \frac{5x+3y}{xy}$

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

$= \frac{4a}{} - \frac{3a+6}{}$

$= \frac{4a-3a-6}{}$

$= \frac{a-6}{2a(a+2)}$

8) $\frac{a^5y^3}{wy^7} \div \frac{a^3w^2}{w^5y^2}$

$= \frac{a^5y^3}{wy^7} \cdot \frac{w^5y^2}{a^3w^2}$

$= \frac{a^2w^2}{y^2}$

9) $\frac{m}{m-n}-\frac{m}{n-m}$ (-1) (-1)

$= \frac{m}{m-n}-\frac{-m}{m-n}$

$= \frac{m+m}{}$

$= \frac{2m}{m-n}$

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

$= \frac{1+x^2+x}{}$

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

11) $\frac{n}{n-3}+\frac{2n+2}{n^2-2n-3}$ $2(n+1)$ $(n-3)(n+1)$

$= \frac{n+2}{n-3}$

12) $\frac{n^5}{n-6} \cdot \frac{n^2-6n}{n^8}$

$= \frac{n^5}{n-6} \cdot \frac{n(n-6)}{n^8 n^2}$

$= \frac{1}{n^2}$

13) $\frac{4a}{3bc}-\frac{15b}{5ac}$ (5a) (3b) (5a) (3b)

$= \frac{20a^2-45b^2}{}$

$= \frac{20a^2-45b^2}{15abc}$

$= \frac{4a^2-9b^2}{3abc}$

14) $\left(\frac{2xy}{x^2}\right)^3 \div \frac{24x^3}{x^5}$

$= \frac{8x^3y^3}{x^6} \cdot \frac{x^5}{24x^3}$

$= \frac{y^3}{3x}$

15) $\frac{3}{x+2} + \frac{4x+5}{3x+6}$

$3(x+2)$

$= \frac{9}{} + \frac{4x+5}{}$

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

16) $\frac{7}{4x} - \frac{1}{3} - \frac{5}{6x}$

$(4x)$

$= \frac{21 - 4x - 10}{}$

$= \frac{-4x+11}{12x}$

17) $\frac{9}{d-8} \cdot \frac{8-d}{15}$

$= \frac{3\,9}{d-8} \cdot \frac{-(d-8)}{-15_{-5}}$

$= -\frac{3}{5}$

18) $\frac{4z}{z-4} + \frac{z+4}{z+1}$

$= \frac{4z^2+4z}{} + \frac{z^2-16}{}$

$= \frac{5z^2+4z-16}{(z+1)(z-4)}$

19) $\frac{12y}{y^2-9} - \frac{5}{y-3}$

$(y-3)(y+3)$

$= \frac{12y}{} - \frac{5y+15}{}$

$= \frac{12y-5y-15}{}$

$= \frac{7y-15}{(y+3)(y-3)}$

20) $\frac{-2}{3x-12} - \frac{3}{8-2x}$

$(-2)3(x-4) \quad -2(x-4)(3)$

$= \frac{-4}{} - \frac{9}{}$

$= \frac{-13}{-6(x-4)}$

$= \frac{13}{6(x-4)}$

21) $\frac{3}{y^2+y-12} - \frac{2}{y^2+6y+8}$

$(y+2)(y+4)(y-3) \quad (y+4)(y+2)(y-3)$

$= \frac{3y+6}{} - \frac{2y-6}{}$

$= \frac{y+12}{(y+2)(y+4)(y-3)}$

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

$(x+2)$

$= \frac{5x-2}{} + \frac{x^2+2x}{}$

$= \frac{x^2+7x-2}{x+2}$

23) $\frac{r^3}{a^2-25} \div \frac{2r}{5-a} \cdot \frac{ar+5r}{8}$

(-1)

$= \frac{r^3}{(a+5)(a-5)} \cdot \frac{a-5}{-2r} \cdot \frac{r(a+5)}{8}$

$= -\frac{r^3}{16}$