RATIONAL EXPRESSIONS

Simplify:

1) $\frac{x^2+4x+3}{x+1}$

2) $\frac{x^3+x^2}{x+1}$

3) $\frac{x^2-7x-18}{2x^2+3x-2} - \frac{3x^2+12xy-15y^2}{6x^3-6xy^2}$

4) $\frac{x^2+6x+5}{x^2+25}$

5) $\frac{(x+3)}{(x-4)} \cdot \frac{x^2-2x-8}{x^2-9}$

6) $\frac{x-7}{x-1} \cdot \frac{x^2-1}{3x-21}$

7) $(4x^2-25) \div \frac{2x+5}{14}$

8) $\frac{x+3}{x^2+x-2} + \frac{2}{x^2-1}$

9) $\frac{x^2+3x-10}{2x} \div \frac{x^2-5x+6}{x^2-3x}$

10) $\frac{4x+1}{6x+5} + \frac{8x+9}{6x+5}$

FACTORING AND CALCULATING ZEROS

Factor each of the following and calculate the zeros when appropriate.

1) $12x^5y^4 - 4x^4y^3 + 2x^3y^2$

2) $5x^2 = 20x$

3) $2(x-7) + 9x(x-7)$

4) $5y(a-b) - (a-b)$

5) $x^3 - 5x^2 + 3x - 15$

6) $6x^2(5x-1) + 5x - 1$

7) $x^2 + 5x = -4$

8) $x^2 + 7 = 10x - 18$

9) $4x^2 + 16x - 9 = 0$

10) $x^2 - 8x + 16 - y^2$