Math7b

Homework 6: Review

1. Solve for x (i.e. find values of x, e.g for $x^2 = 4$, x can be +2 or -2:
   a. $2x^2 - 8/9 = 0$
   b. $40\,x^2 - 25\,x = 0$
   c. $3\,(x^2 - x) = 2x^2 - 3x + 1$

2. Simplify:
   a. $\frac{x-y}{x^2y} - \frac{x-y}{xy^2}$
   b. $\frac{a}{c(a-b)} - \frac{c}{a(b-a)}$
   c. $\frac{1}{x(x-y)(x-z)} + \frac{1}{y(y-z)(y-x)} + \frac{1}{z(z-x)(z-y)}$
   d. $\frac{4(1+r)+3r(1-r)}{1-r^2} - \frac{7a(1+r)-6r(1-r)}{a-ar^2}$
   e. $\frac{a^2-4}{a^2-4a+4}$ [Hint: factorize numerator and denominator and cancel out common factors]
   f. $1 - \frac{1}{a-\frac{1}{b-\frac{1}{c}}}$

3. Factorize:
   a. $8a^3b^3 - 125c^3$
   b. $-x^4 + x^2 + 12$
   c. $3x^2 + 20x + 32$
   d. $21x^2 + 61x + 28$
   e. $x^5 - 2x^4 + x^3$