

Math 6b
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. $2x^2 - \frac{8}{9} = 0$

b. $40x^2 - 25x = 0$

c. $x^2 - x - 20 = 0$ [Hint: First factorize. E.g if (x-a) and (x+a) are factors, x can be +a or -a.]

d. $x^2 + 7x - 18 = 0$

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. $\frac{a^2-4}{a^2-4a+4}$ [Hint: factorize numerator and denominator and cancel out common factors]

e. $1 - \frac{1}{a - \frac{1}{b - \frac{1}{c}}}$

3. Factorize:

a. $8a^3b^3 - 125c^3$

b. $-x^4 + x^2 + 12$ [Hint: Imagine $x^2 = y$]

c. $x^5 - 2x^4 + x^3$ [Hint: First take common factor out and factorize the remaining part]