Question 6: Fractions with letters

a) Split into fractions with only one term in the numerator:

$$\frac{2b^2 + 3bc - 7}{ab + c} =$$

b) Write the fraction with a common denominator, and then expand all the brackets:

$$\frac{a}{a-3} + \frac{b}{a+b} =$$

c) Simplify the following fraction as much as possible:

$$\frac{8a + 16}{4a - 8} =$$

d) Simplify the following fraction as much as possible:

$$\frac{10a - 6b}{25a^2 - 9b^2}$$

e) Write the fraction with a common denominator and simplify as much as possible:

$$\frac{1}{a-4} - \frac{1}{a^2 - 16} =$$

Question 7: Linear equations

7.1) Find x for the following equations.

a $\quad -3x + 2 = -10$

b $\quad 5x - 3 = 5 - 2x$

7.2) Write the given inequalities in one of the following forms:

x < a, $\quad$ x ≤ a, $\quad$ x > a or x ≥ a

a) $\quad -2 - 3x > 4$

b) $\quad -\frac{1}{5}x + \frac{2}{3} < \frac{1}{3}x - 1$

7.3) Find all solutions x for the following equations.

a $\frac{-3}{-5x+3} = 4$

b $(-3x-5)^2 = 16$

Question 8: Quadratic equations

8.1) Find all x satisfying the following equations.

a) $-x^2 + 2 = -4$

b) $3x(-2x-5) = 0$

8.2) Solve the following equations by completing the square.

a) $x^2 + 6x - 7 = 0$

b) $x^2 - 8x + 15 = 0$

c) $x^2 - 3x - 6 = 0$

8.3) Solve the following equations by using the general formula (abc-formula).

a) $2x^2 - 3x - 5 = 0$

b) $-5x^2 - 2x + 2 = 0$