



Exam

Version Preparatory course in mathematics

SF0003 Introductory Course in Mathematics
Friday, August 25, 2017

Duration: 60 minutes

Allowed aids: None

Examinator: Tommy Ekola

Solve the following problems and present complete solutions.

1. Simplify $\frac{\frac{7}{16} - \frac{5}{8}}{\frac{7}{10} - \frac{3}{5}}$ by writing over a common denominator. The answer should be reduced as much as possible.
2. Simplify $\frac{2}{x^2 - 4} - \frac{1}{x^2 + 2x}$ as much as possible.
3. Determine a quadratic equation on the form $ax^2 + bx + c = 0$ which has the roots $3 + \sqrt{7}$ and $3 - \sqrt{7}$.
4. Solve the equation $e^{x^2+2x} = 1$.
5. Determine the centre and the radius of the circle which is given by the equation $x^2 + 6x + y^2 - 4y = -4$.
6. Solve the equation $\sin x = \sin \frac{\pi}{5}$.