



# Sample exam 1

*Version Preparatory course in mathematics*

**SF0003 Introductory Course in Mathematics**  
**August 2017**

Duration: 60 minutes

Allowed aids: None

Examinator: Tommy Ekola

The exam consists of six questions each worth at most two points. A total of seven points or more will give a pass grade.

1. Write  $\frac{1}{6} - \frac{3}{10} + \frac{13}{15}$  over a common denominator. The answer should be reduced as far as possible.
2. Determine the coefficients in front of  $x$  and  $x^2$  when the expression  $(x+3)(x^2+2x-1)(19x^3-x^2+1)$  is completely expanded.
3. Determine the intersection point between the line  $x+2y-4=0$  and the line  $x=10$ .
4. Solve the equation  $3\sqrt{3-x}=5-x$ .
5. Determine the centre and the radius of the circle given by the equation  $x^2-2x+y^2+2y=1$ .
6. Solve the equation  $\sin 5x = \frac{1}{2}$ .