



ÇANKAYA UNIVERSITY

Department of Mathematics and Computer Science

MCS 101- Mathematics for International Trade I

FIRST MIDTERM EXAMINATION-Sample Exam

STUDENT NUMBER:

NAME-SURNAME:

SIGNATURE:

INSTRUCTOR:

DURATION: 90 minutes

Question	Grade	Out of
1		
2		
3		
4		
5		
6		
Total		

IMPORTANT NOTES:

- 1) Please make sure that you have written your student number and name above.
- 2) Check that the exam paper contains 6 problems.
- 3) Show all your work. No points will be given to correct answers without reasonable work.
- 4) Your exam will not be graded if you don't take the exam at the right place.

1) Find the solution sets of the following expressions.

a) $\frac{x+4}{1-2x} + \frac{x+1}{2x-1} = 1$

b) $\left| \frac{5x-8}{3} \right| \geq 2$

c) $\sqrt{x^2 - 2x + 1} < 3$

2) Find the domain of the following functions.

a) $f(x) = \frac{\sqrt{x-2}}{3x^2 + 10x + 3}$

b) $f(x) = \log_{(x^2-4)}(x+1)$

3) Let $f(x) = 3x + 1$ and $g(x) = x^2 + 2$.

a) Find $(f \circ f)(x)$, $(g \circ f)(x)$, $(g \circ g)(4)$ and $(f \circ g)(1)$

b) Evaluate $(f + g)(0)$, $(\frac{f}{g})(2)$, $(g - f)(x)$ and $(fg)(x)$.

4) For the function $f(x) = x^2 - 12x + 35$,

- a) Find vertex.
- b) Find x-intercept and y-intercept points.
- c) Sketch the graph of the function.
- d) Find $Domain(f)$ and $Range(f)$.
- e) Sketch the graph by shifting.

- 5) **a)** Find an equation of a line passing through the points $(2, -3)$, $(-1, 4)$.
b) Find the slope of the line you found in part (a).
c) Find x-intercept and y-intercept of the line you found in part (a).
d) Sketch the graph of the line you found in part (a).

6) Solve the following equalities.

a) $5^{\log x} + x^{\log 5} = 50$

b) $\log_2(x) - \log_{\sqrt{2}}(x) = 5$