Lecture 5: Quiz

Name:

Problem 1

Lets look at the **quadratic equation**: $x^2 + bx + c = 0$ and assume the two solutions are $x_i = (-b \pm \sqrt{b^2 - 4c})/2$. Which of the following identities are true?
a) $x_1 + x_2 = -b$
b) $x_1 + x_2 = b$
c) $x_1 \cdot x_2 = -c$
d) $x_1 * x_2 = c$

Problem 2

Who found the general formula for the quadratic equation fist?
a) Euler
b) Al-Khwarizmi
c) Euclid

True or false?
d) There is a formula for the solution of the cubic equation.
e) There is a formula for the solution of the quartic equation.
f) There is a formula for the solution of the quintic equation.

Problem 3

Who found the solution of the cubic equation by radicals?

a) Cardano, Tartaglia and del Ferro
b) Trick question. One can not solve the cubic with radicals.
c) Kepler
d) Lodovico Ferrari

Problem 4

The set of all possible rotations and reflections which leave invariant a cube has how many elements?

a) 16   b) 24   c) 12   d) 8

Problem 5

The set of all possible rotations which leave invariant a regular pentagon has how many elements?

a) 2   b) 5   c) 10   d) 20

Problem 6

The set of all possible rotations and reflections which leave invariant a regular pentagon has how many elements?
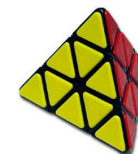
a) 2   b) 5   c) 10   d) 20

Problem 7

a) Which of the choices A-F is the Rubik cube.
b) Which of the choices A-F is the 15 puzzle?

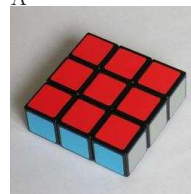A   B   C

D   E   F

Problem 8

In class we looked at the **floppy puzzle**. How many elements does this group have?

a) $4! \cdot 8 = 192$.
b) $9! = 362880$.
c) $4! \cdot 4! \cdot 2^4 = 9216$.
d) 12.