



Preca College Korçë

Mathematics Entrance Exam

8th June 2024

Time: 8:00 – 10:00

Name: _____

Registration number: _____

INSTRUCTIONS TO CANDIDATES

- Answer all the questions in the space provided.
- Show all your working.

Q.1. Simplify: *Thjeshtoni*.

(9 marks)

(i) $5(2a + 3) + 3(4 - 3a)$

(ii) $\frac{p^2 - p^3q^4}{p^2}$

(iii) $\frac{2x+9}{8} - \frac{x+1}{4}$

Q.2. Solve the following equations: *Zgjidhni ekuacionin.*

(12 marks)

(i) $4a + 3 = a + 24$

(ii) $5(c - 3) = 10$

(iii) $\frac{11x-4}{4} = -12$

(iv) $2(x + 3) = 3(x - 4)$

Q.3. Find the value of 'p' in the following equations: *Gjeni vlerën e 'p'-it nga barazimi*

(12 marks)

(i) $(2^5)^p = 2^{20}$

(ii) $(125)^p = 5$

(iii) $(6)^p \times (6)^3 = 1$

(iv) $(3)^{2p} \div (3)^5 = (3)^{15}$

Q.4. Solve the system of equations: *Zgjidhni sistemin.*

(8 marks)

$$3x + 2y = -6$$

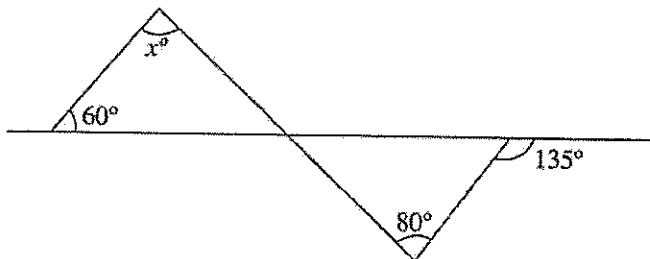
$$4x + 10y = 3$$

Q.5. Find the value of 'x' in the following: *gjeni masën e kendeve 'x'.*

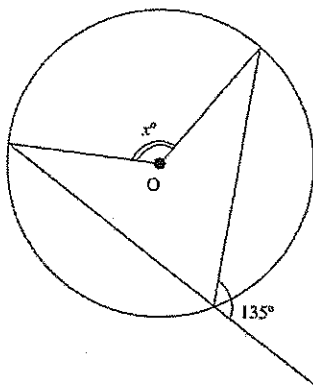
In part (ii) "O" is the centre of the circle.

(5 marks)

(i)



(ii)



Q.6. Work out the following: *Kryeni veprimet.*

(8 marks)

(i) $\sqrt{3} \times \sqrt{27}$

(ii) $\sqrt{\frac{24}{33}} \times \sqrt{\frac{11}{8}}$

(iii) $\sqrt{\frac{3}{13}} \times \sqrt{\frac{52}{27}}$

(iv) $\sqrt[3]{\frac{24}{7}} \times \sqrt[3]{\frac{7}{3}}$

Q.7. Daniel is 'x' years old; Fabio is twice: *dyfish:* as old as Daniel and Maria is twice: *dyfish:* as old as Fabio. The sum: *shuma:* of their ages is 21 years. (7 marks)

(i) How old is each one?

The sum of €3640 is to be divided between Daniel and Fabio and Maria in the ratio: *në përpjesëtim*: of their ages.

(ii) How much money does each one get?

Q.8. In a questionnaire: *pyetësor*: a number of families were asked how many children they have. The table; *tabelë* below shows the results of the questionnaire: *pyetësor*.

(8 marks)

Number of Children	0	1	2	3	4	5
Number of Families	17	55	82	25	14	7

(i) How many families took part in the questionnaire: *pyetësor*?

(ii) What is the mode (*moda*) number of children in a family?

(iii) Find the total number of children in these families?

(iv) What is the mean (*mesatarja*) number of children per family?

Q.9. The letters: *shkronja*: of the word **M.I.S.S.I.S.S.I.P.P.I** are put in a bag: *qese*.
If **one letter: *një shkronjë***: is drawn out at random: *rastësisht*: calculate the probability
that the letter: *shkronjë*: is (11 marks)

(i) M

(ii) S

(iii) P

(iv) S or P

If **two letters: *dy shkronja***; are drawn at random (one after the other), (*njëra pas tjetra*) and not replaced back in the bag: ***dhe nuk revendos në qese***. What is the probability that the two letters are:

(v) P and P?

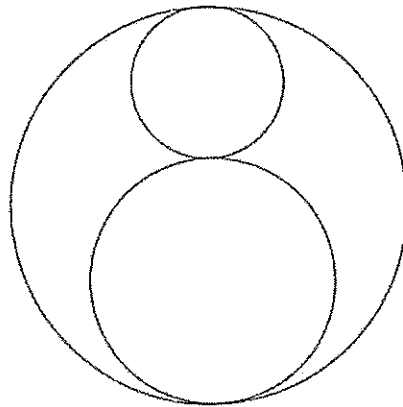
(vi) M and S?

Q.10. (6 marks)

(i) 16 workers need: *harxhojnë*: 10 hours to finish a job. How long does it take 10 workers to finish the same job, if they work at the same rate?

- (ii) In a bag: *qese*: there are 100 kg of cement. In the first job $\frac{7}{10}$ of the cement was used. In the second job $\frac{1}{3}$ of the remaining: *mbetet*: cement was used. How much cement remained in the bag for third job?

Q.11. In the diagram below, the outer circle: *rrethi i jashtëm*: represents: *përfaqëson*: a traffic roundabout: *rreth rotullimi*. (14 marks)



Inside the outer circle are drawn two smaller circles, one of radius: *rrezen*: 5m, covered with **yellow** tulips (flowers) another, of radius: *rrezen* 7m, covered with **red** tulips.

The rest: *çka mbetet*: of the outer circle is covered with **orange** tulips.

- (i) Mark these details on the diagram
- (ii) What is the diameter of the roundabout?

(iii) What is the area: *sipërfaqje* covered in yellow flowers?

(Take $\pi = 3.14$)

(iv) What is the area covered in red flowers?

(v) What is the area covered in orange flowers?

In every 1m^2 there are 9 tulips.

(vi) How many tulips are there in the whole roundabout?

Each tulip costs €3.

(vii) What is the cost of covering the whole roundabout with tulips?

Good Luck – End of Paper