



Preca College Korçë
Mathematics Entrance Exam
23rd June 2015
Time: 8:00 - 10:00

Name: _____

Index number: _____

INSTRUCTIONS

*** Answer all questions**

*** Do all your working in the space provided besides each question**

*** Write down the answer to each question in the space provided (Ans. ____)**

Q.1 FIND THE VALUE OF:

(5 MARKS)

a. $a^3 + a^2 + 3a + 5$ when $a = 1$.

Ans. _____

b. $b^3 + 3b^2 + 5b - 3$ when $b = 2$.

Ans. _____

c. $3y^3 - 5y^2 + 2$ when $y = 3$.

Ans. _____

d. $a^2b + 2ab^2$ when $a = 2, b = 3$.

Ans. _____

Q.2 SOLVE THE FOLLOWING EQUATIONS.

(5 MARKS)

a. $3x - 1 = 11$

Ans. _____

b. $5x + 3 = 23$

Ans. _____

c. $2x - 1 = x + 4$

Ans. _____

d. $3(x - 4) = x + 20$

Ans. _____

Q.3 MAKE THE LETTER 'a' THE SUBJECT OF THE FORMULA.

(5 MARKS)

a. $ab - c = p$

Ans. _____

b. $5a - b + c = d$

Ans. _____

c. $\frac{abc}{5} = d$

Ans. _____

d. $\frac{a}{b} - \frac{c}{d} = 1$

Ans. _____

Q.4 SOLVE THE FOLLOWING EQUATIONS.

(9 MARKS)

a. $x^2 - 4x - 5 = 0$

Ans. _____

b. $x^2 + 6x + 5 = 0$

Ans. _____

c. $2x^2 - 9x - 5 = 0$

Ans. _____

Q.5 SOLVE THE SIMULTANEOUS EQUATIONS.

(10 MARKS)

a. $4x + 3y = 1$
 $5x + 4y = 2$

Ans. _____

b. $3x + 2y = 7$
 $4x + 3y = 10$

Ans. _____

Q.6 SIMPLIFY THE FOLLOWING. GIVE YOUR ANSWERS IN POSITIVE POWERS. (6 MARKS)

a. $x^{-2}y \times 3x^{-3}y^{-2}$ *Ans.* _____

b. $\frac{12x^{-2}y}{3xy^{-4}}$ *Ans.* _____

c. $\frac{x^{-3}y^0}{x^{-4}y^{-3}}$ *Ans.* _____

Q.7 SOLVE THE FOLLOWING. (9 MARKS)

a. $3^{3x-1} = 9$ *Ans.* _____

b. $4^{x-1} = 8^x$

Ans. _____

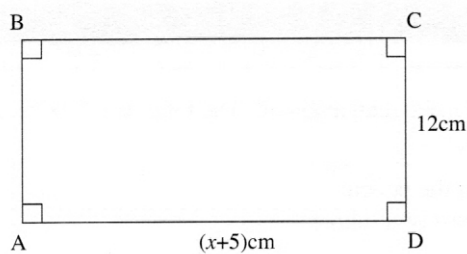
c. $3^{x+1} = \frac{1}{27}$

Ans. _____

Q.8

- a. The area of the given rectangle ABCD is 180 cm^2 . Find the value of x .
Then find the perimeter of rectangle ABCD.

(5 MARKS)



Ans. $x =$ _____

Ans. *perimeter* = _____

b. In another rectangle PQRS, the length is **5cm longer** than the breadth, whereas the size of the area is **3 times the size** of the perimeter.

(10 marks)

i. Draw and label this rectangle.

ii. Obtain an expression for the area and an expression for the perimeter of the rectangle.

Ans. Area = _____

Ans. Perimeter = _____

iii. Find the length and breadth of the rectangle.

Ans. _____

Ans. _____

iv. Find the area of the rectangle.

Ans. _____

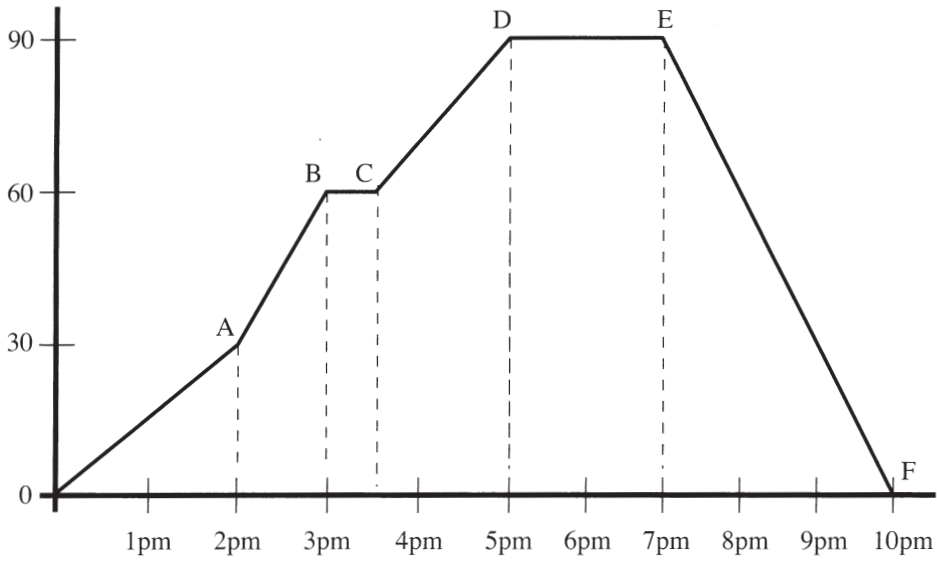
v. Find the perimeter of the rectangle.

Ans. _____

Q.9 The diagram represents the journey of a bus taking a group of tourists from their hotel to a resort 90km away and back. **(9 MARKS)**

a. What was the speed of the bus on the journey OA? **Ans.** _____

b. What was the speed of the bus on the journey CD? **Ans.** _____



c. What was the speed of the bus on the return journey? **Ans.** _____

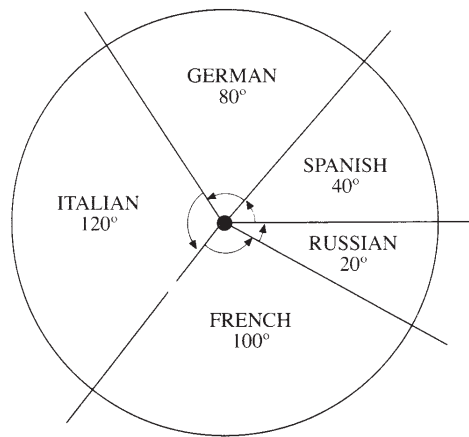
d. How long did they stay at the resort? **Ans.** _____

e. What was the average speed of the bus for the whole journey (**away and back**)? **Ans.** _____

Q.10

In a school the students were asked to choose a second foreign language out of Spanish, German, Italian, French and Russian. The results are represented by the pie chart. **Only five (5) students chose Russian.**

(6 MARKS)



a. How many students chose Spanish?

Ans. _____

b. How many students chose French?

Ans. _____

c. What percentage of students chose Italian?

Ans. _____

d. How many students in all took part in the exercise?

Ans. _____

Q.11 There are twelve (12) coloured balls in a bag as shown below.

(8 MARKS)



a. If one ball is picked at random, what is the probability that **it will be black**?

Ans. _____

b. If one ball is picked at random, what is the probability that **it will not be black**?

Ans. _____

c. If one ball is picked at random, what is the probability that **it will be black or red**?

Ans. _____

d. A ball is picked at random and **replaced back** in the bag. A second ball is picked at random.
What is the probability that both balls will be **red**?

Ans. _____

e. A ball is picked at random and **not replaced back** in the bag. A second ball is picked at random.

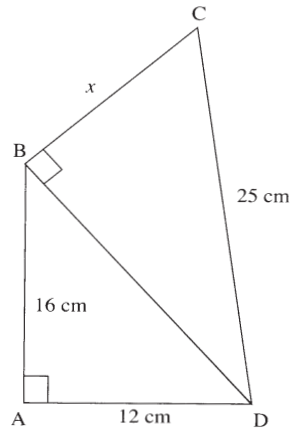
What is the probability that both balls will be **white**?

Ans. _____

Q.12

In the diagram below find x . Then find the area of ABCD.

(6 MARKS)



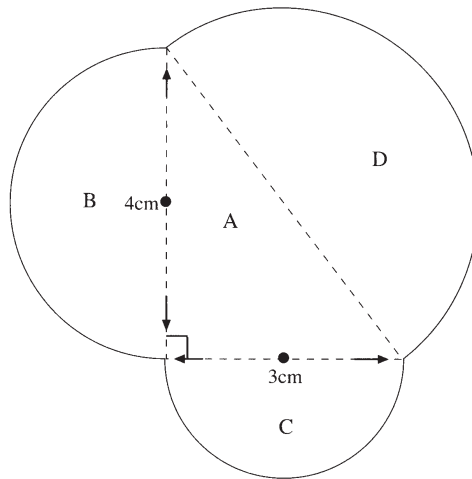
Ans. $x =$ _____

Ans. Area = _____

Q.13

In the figure below, A is a right-angled triangle, B, C and D are semi-circles.

(7 MARKS)



a. Find the area of triangle A.

Ans. _____

b. Find the area of semi-circle D.

Ans. _____

c. Find the area of the whole figure.

Ans. _____