Sarajevo School of Science and Technology Entrance Examination

Mathematics

Duration: 1,5 hours
Use of calculators: Allowed

Department of study: Game Design and Development
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Question 1.

Blueberries cost more than strawberries.
Blueberries cost less than raspberries.
Raspberries cost more than both strawberries and blueberries.

If the first two statements are true, the third statement is

A. true
B. false
C. uncertain

Question 2.

Which number replaces the question mark?

3 7   2 8   3 9
  18   12   ?

a) 33

b) 44

c) 22

d) 55

Question 3.

In the following question, select a figure from amongst the four alternatives, which when placed in the blank space of figure (x) would complete the pattern.
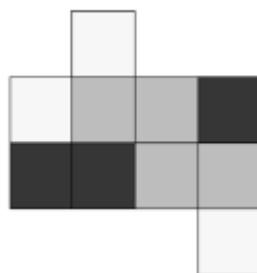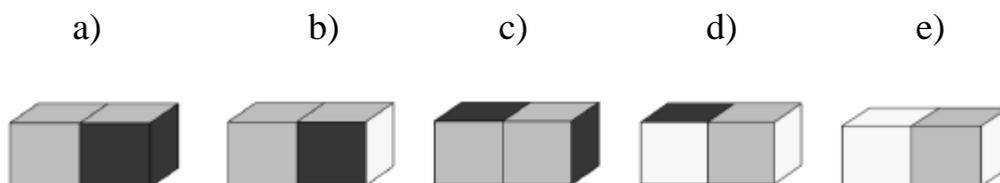
Identify the figure that completes the pattern.

(X)   (1)   (2)   (3)   (4)

a) 1,

b) 2

c) 3

d) 4

Question 4.

One piece of paper given in a figure is transformed into the box of dimension 2×2×1.

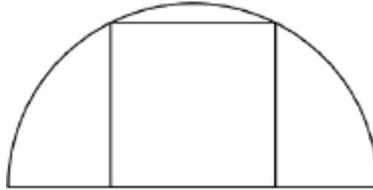Which of the following figures is presenting that box?

a)   b)   c)   d)   e)

Question 5.

Suppose we are given the following figure. A radius of a circle is equal 1cm.

Evaluate the area of a square in the figure.

Question 6.

$(x+3)(x+2)(x-2)>0$

Which of the following is a solution to the inequality above?

a) -4

b) -2

c) 0

d) 3

Question 7.

If it holds $3^{2x+y} = \dfrac{1}{\sqrt{27}}$ and $3^{-x+y} = \sqrt{3}$, then the value of expression $x+2y$ is equal:

a) 0

b) -1

c) 2

d) 1

Question 8.

In a bag of ten marbles, three are red and seven are green. Two marbles are drawn out at random. With the aid of a probability tree, find the probability of choosing two marbles that are the same colour.

Question 9.

Which of the following functions has zeros at both -1 and 3?

a) $f(x) = \dfrac{x+1}{x-3}$.

b) $f(x) = \dfrac{5(x+1)(x-3)}{x-3}$

c) $f(x) = \dfrac{3(x+1)(x+3)}{x+3}$

d) $f(x) = \dfrac{(x+1)(x-3)}{x+3}$

Question 10.

A price of a book is a natural number n. A total price of 9 books is bigger than 1100$ and less than 1200$, while total price of 13 books is bigger than 1500$ and less than 1600$. What is the unknown price of one book?