

Markhor Junior Contest 2022

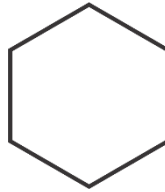
ASPIRANT LEVEL (GRADES IX & X) Mathematics

Time Allowed 60 Minutes

19 problems to solve: five – 1 point each, five – 2 points each, five – 3 points each, and four – 5 points each

1. Which of the following is closest to $\sqrt[3]{30}$
 - a. 2
 - b. 3
 - c. 4
 - d. 5
2. The greatest number of diagonals that can be drawn from one vertex of a regular 6-sided polygon (hexagon) is

- a. 3
- b. 4
- c. 5
- d. 6

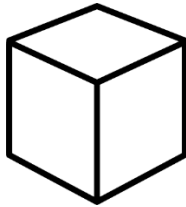


3. Before Mr. Umar changed jobs his salary was 25% more than Mr. Arham's salary. After Mr. Umar changed jobs his new salary was 25% less than his old salary. Which statement is true?
 - a. Mr. Umar's salary is equal to Mr. Arham's salary
 - b. Mr. Umar's salary is less than Mr. Arham's salary
 - c. Mr. Umar's salary is greater than Mr. Arham's salary
 - d. None of the above

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4. If the volume of a cube is 64 cm^3 what is the area of the base of the cube?

- a. 8 cm^2
- b. 4 cm^2
- c. 16 cm^2
- d. 32 cm^2

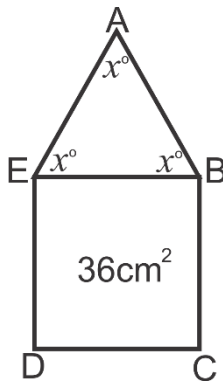


5. The number 0.01 is how many times are great as the number $(0.0001)^2$

- a. 10^2
- b. 10^4
- c. 10^6
- d. 10^8

6. From the following diagram calculate the value of x.

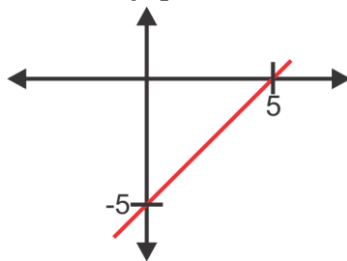
- a. 180
- b. 60
- c. 80
- d. 90



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7. A certain cake recipe states that the cake should be baked in a pan 8 inches in diameter. If we want to use the recipe to make a cake of the same depth but 12 inches in diameter, by what factor should we multiply the recipe?
- a. 2.25
 - b. 1.5
 - c. 1.25
 - d. 12
8. What is the slope of line L in the xy-plane?

- a. -5
- b. -1
- c. 0
- d. 1



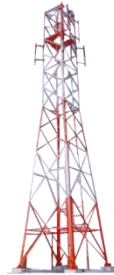
9. What is the length of a diagonal of a rectangle that has a width of 5cm and a perimeter of 34cm?
- a. 15 cm
 - b. 12 cm
 - c. 13 cm
 - d. Cannot be determined with this information



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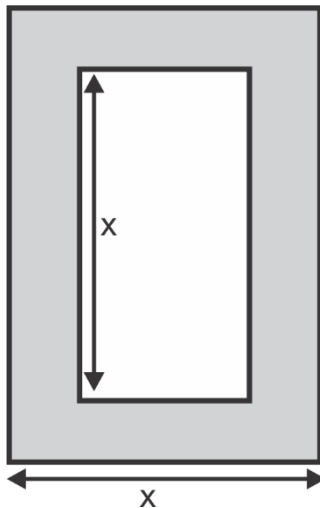
10. On a Mobile phone tower, a red light flashes every 6 seconds, and a blue light flashes every 10 seconds. If both flash together at a certain time, how many seconds later will both lights flash together the next time?

- a. 30 seconds
- b. 50 seconds
- c. 1 minute 20 seconds
- d. 30 minutes



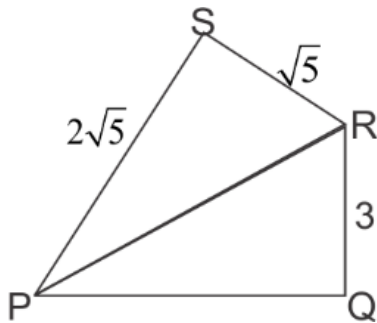
11. A rectangular garden has a walking track 1 meter wide around it. The shaded area represents the track path. For what value of x in meter(s)? If the area of the garden is equal to the area of the walking track.

- a. 4
- b. 6
- c. 8
- d. 10



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12. In a regular octagon, how many squares can we draw from vertex to vertex?
- 2
 - 4
 - 8
 - 16
13. A student writes a general form of a prime number $4n+3$ for any integer n . Which of the following values of n could be used to disprove this general form?
- 1
 - 3
 - 4
 - 5
14. Find the area of PQRS.
- 15
 - 12
 - 11
 - 10



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15. Which of the following could be the value of y . if

$$\frac{2y-3}{y} = \frac{3-y}{2}$$

- a. 4
- b. 1
- c. -1
- d. -3

16. Which of the following lists of numbers have the same range

A **-15,-1,0,1,15**

B **-7,-4,-2,-1,13**

C **0,1,2,5,8,10**

D **2,3,5,15,19,22**

- a. A and B
- b. A and C
- c. B and D
- d. All have different ranges.

17. In Markhor Junior Contest Fahad's score is 20% more than the previous year. What is the ratio of the present year's score to the previous year's score?

- a. 1 to 5
- b. 5 to 6
- c. 6 to 5
- d. 5 to 1

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18. In the 2019 Markhor Junior Contest, statistical analysis of a particular school shows that 300 students participate in contests which are 60 percent of students in that school. Next year in 2020 in the same school the total number of students increased by 20 percent and 450 students participated in the contest. From this information which statement is true?
- a. The number of participants increased by 10 percent.
 - b. The number of participants increased by 15 percent.
 - c. The number of participants decreased by 10 percent.
 - d. The number of participants decreased by 5 percent.
19. The figure shows a regular 10-sided polygon (decagon). What is the value of x ?
- a. 44°
 - b. 60°
 - c. 36°
 - d. 144°

