

QUESTION PAPER

PAKISTAN MATHS CONTEST ADOLESCENTS (GRADE 9 & 10)

TIME ALLOWED: 90 MINUTES

MAXIMUM MARKS: 90

TOTAL QUESTIONS: 30 MCQS

INSTRUCTIONS

1. DON'T OPEN THIS BOOKLET UNTIL INSTRUCTED.
2. WRITE YOUR NAME, FATHER NAME, SCHOOL ETC AT THE BUBBLE SHEET ONLY.
3. RECORD ALL ANSWERS ON THE BUBBLE SHEET ONLY.
4. SELECT BEST ANSWER FROM THE FOUR GIVEN OPTIONS AND MARK ONLY ONE OPTION IN EACH QUESTION.
5. USE BLUE / BLACK INK TO FILL UP THE CIRCLES FOR YOUR ANSWERS ON THE BUBBLE SHEET.
6. USE OF ANY HELPING MATERIAL INCLUDING CELL PHONES AND ELECTRONIC DEVICES IS STRICTLY PROHIBITED.
7. EVERY CORRECT ANSWER EARNS THREE POINTS.
8. ONE POINT WOULD BE DEDUCTED FOR EVERY INCORRECT ANSWER.



**International
Competence and Aptitude Testing Services**

Q1. A _____ is an ordered collection of objects.

- a. Relation
- b. Function
- c. Set
- d. Proposition

Q2. If A, B and C are any three matrices where $AB=C$ then.

- a. $B=C/A$
- b. $B=CA^{-1}$
- c. $B=A^{-1}C$
- d. $B=C^{-1}A$

Q3. How many rational and irrational numbers are possible between 0 and 1

- a. Finite
- b. Infinite
- c. 0
- d. 1

Q4. 0.034297 correctly rounded-off to 4 decimals is _____.

- a. 0.0342.
- b. 0.03430.
- c. 0.0343.
- d. 0.034.

Q5. Which number is both a square and a cube?

- a. 64
- b. 16
- c. 8
- d. 4

Q6. The area of a rectangular figure is 200 m^2 . If the length is doubled, the new area will be _____?

- a. 300 m^2
 - b. 400 m^2
 - c. 200 m^2
 - d. 600 m^2
-

Q7. The number 0.000147560 in scientific notation is _____

- a. 0.14756×10^{-3}
 - b. 1.4756×10^{-4}
 - c. 1.4756×10^4
 - d. 0.14756×10^{-5}
-

Q8. The least number which when divided by 35, leaves remainder of 25; when divided with 45 leaves a remainder of 35 and when divided by 55 leaves 45 as remainder, is

- a. 3455
 - b. 3465
 - c. 3475
 - d. 10
-

Q9. If 15 boys working independently and at the same rate can assemble 30 machines in an hour, How many machines would 48 boys working independently and at the same rate assemble in 40 minutes?

- a. 54
 - b. 64
 - c. 96
 - d. 68
-

Q10. A man pays 10% of his income as income tax. If his income tax amounts to Rs.1500, what is his income?

- a. Rs.13000
 - b. Rs.15000
 - c. Rs.17000
 - d. Rs.19000
-

Q11. 20 % of 2 is equal to

- a. 20
 - b. 4
 - c. 0.4
 - d. 0.04
-

Q12. What is the missing number in this sequence?

3, 9, 27, _____, 243

- a. 51
- b. 81
- c. 111
- d. 225

Q13. There are 3 blue pencils, 5 green pencils, 2 black pencils, and 6 red pencils in a drawer. Suppose you grab one pencil at random. What will the probability be that you will grab a blue or a red pencil?

- a. $\frac{3}{8}$
- b. $\frac{9}{16}$
- c. $\frac{3}{16}$
- d. $\frac{1}{2}$

Q14. A three digit number is formed by the digits 1, 2 and 3, with no digit being repeated. The probability that it will be an odd number is:

- a. $\frac{1}{4}$
- b. $\frac{1}{3}$
- c. $\frac{1}{6}$
- d. $\frac{2}{3}$

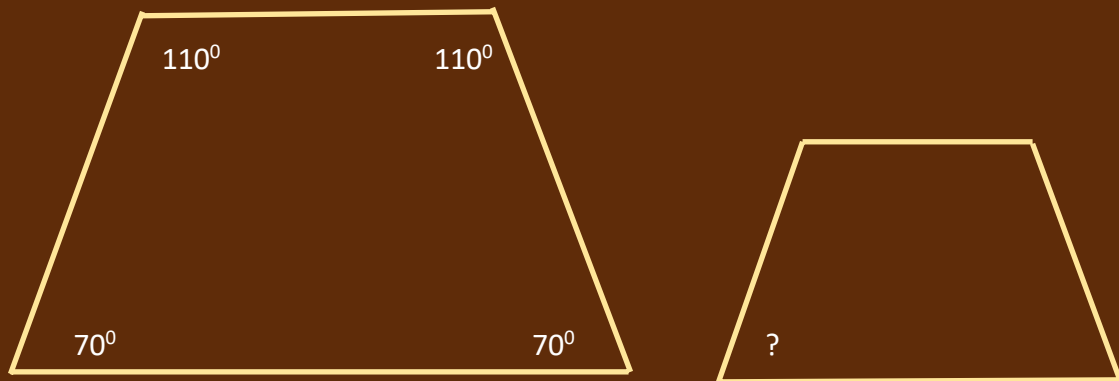
Q15. A survey was conducted in the nine grade class at High School. 45 students stated that they had a computer at home with e-mail access. 180 students were surveyed. In a group of 800 nine graders, which is the best prediction of how many have e-mail access?

- a. 200
- b. 180
- c. 120
- d. 110

Q16. The amount of soft drink in a glass would most likely be expressed in:

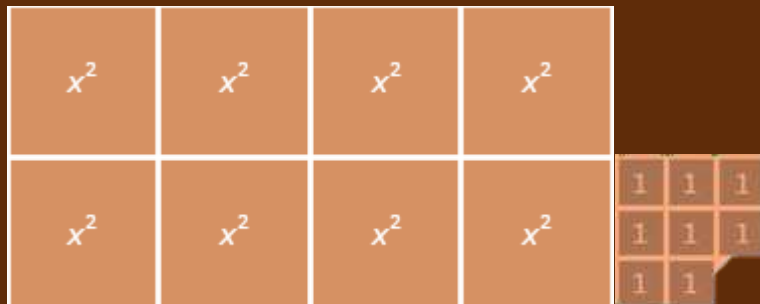
- a. Kiloliters
- b. litres
- c. centimetres
- d. millimetres

Q17. If these two figures are similar, what is the measure of the missing angle?



- a. 70
- b. 90
- c. 110
- d. 180

Q18. What expression does this set of algebra tiles represent?

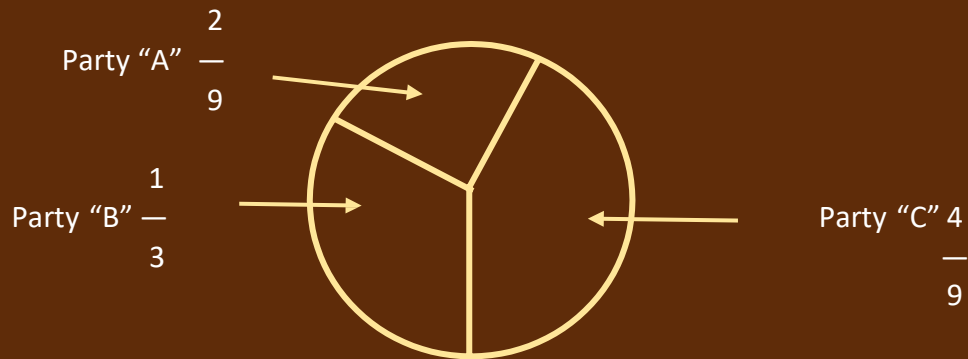


- a. $8x^2 + 8$
- b. $8 + 8x^2$
- c. $16x^2$
- d. $8x^2$

Q19. A rectangular garage is 10 meters long and 7 meters wide. It costs \$7.00 per square meter to put in a new concrete floor. How much would it cost to put a new concrete floor in the garage?

- a. \$7
- b. \$70
- c. \$490
- d. \$700

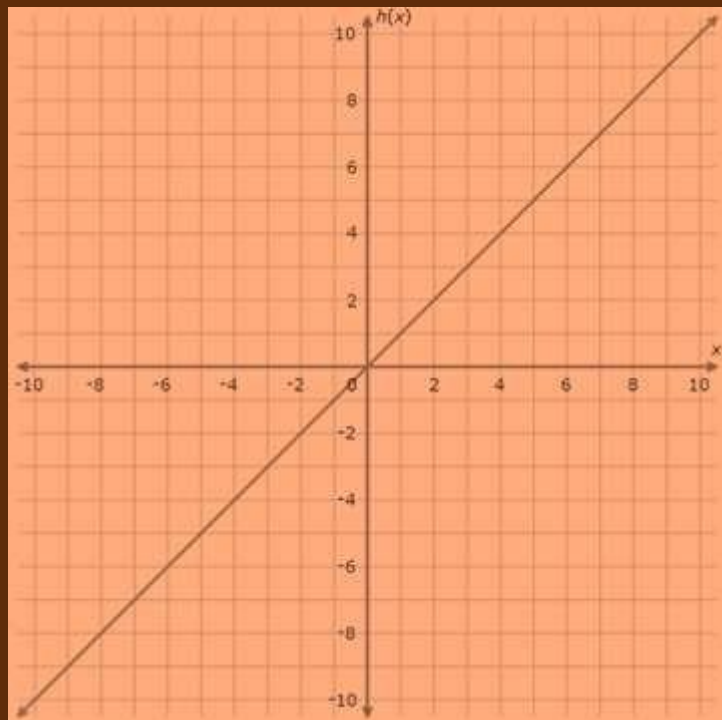
Q20. The below graph shows votes polled to various parties



Which list is arranged from the least popular party to the most popular party?

- a. Party A, Party B, Party C
- b. Party A, Party C, Party B
- c. Party B, Party C, Party A
- d. Party C, Party B, Party A

Q21. How does $h(x)$ change over the interval from $x=3$ to $x=4$?



- a. $h(x)$ increases by 200%
- b. $h(x)$ increases by 100%
- c. $h(x)$ increases by 1
- d. $h(x)$ decreases by 2

Q22. What is the mode of the numbers?



- a. 3
- b. 4
- c. 8
- d. 10

Q23. Aleem counted the number of fish kept in 9 tanks at the pet store. He counted:

2 fish 3 fish 2 fish 5 fish 2 fish 2 fish
3 fish 7 fish 1 fish

What is the mean number of fish?

- a. 2
- b. 3
- c. 7
- d. 9

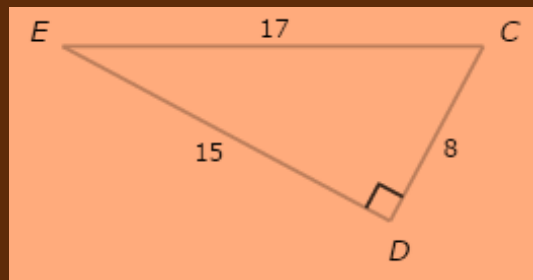
Q24. Alana checked the remaining stock for each shirts sold at the store where she worked. For 6 garments, there remained:

4 items 9 items 9 items 7 items 9 items 5 items

What was the median amount of remaining stock?

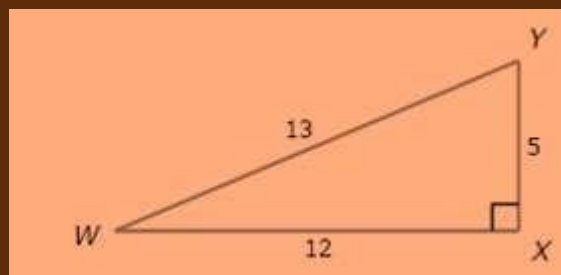
- a. 2
- b. 3
- c. 8
- d. 9

Q25. Sine of $\angle C$ is _____.



- a. 15
—
17
- b. 17
—
15
- c. 15
—
32
- d. 17
—
32

Q26. Cosine of $\angle Y$ is _____



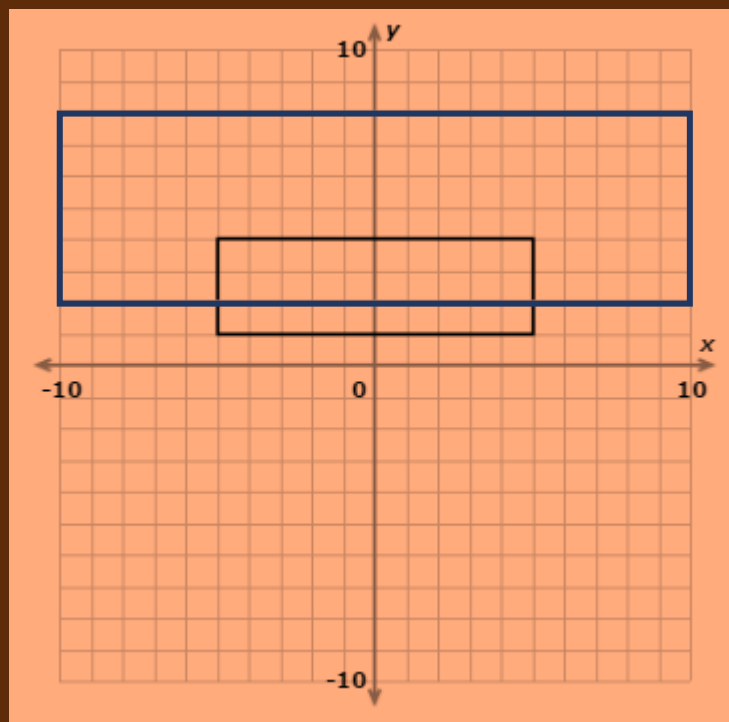
- a. 5
—
12
- b. 5
—
13
- c. 12
—
13
- d. 13
—
12

Q27. Which is this function?

x	y
4	64
5	100
6	144
7	196
8	256

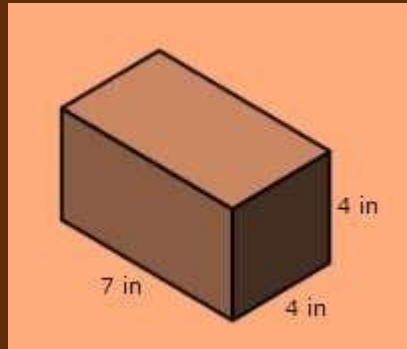
- a. Linear
- b. Quadratic
- c. Exponential
- d. This is not a function

Q28. The blue shape is a dilation of the black shape. What is the scale factor of the dilation?



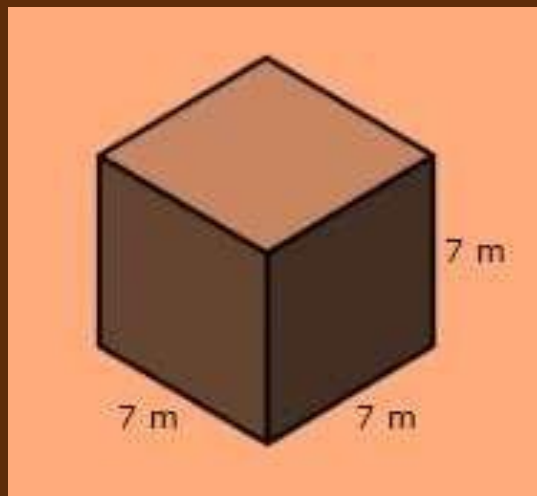
- a. 2
- b. 4
- c. 6
- d. 10

Q29. What is the volume?



- a. 7 inches
- b. 15 inches
- c. 28 inches
- d. 112 inches

Q30. Look at the cube, if the side lengths are tripled, then which of the following statements about its surface area will be true?



- a. The new surface area will be 3 times the old surface area.
- b. The new surface area will be 9 times the old surface area.
- c. The new surface area will be 27 times the old surface area.
- d. The new surface area will be 81 times the old surface area.



PAKISTAN OFFICE

International CATS Contests

Suite # S-5, 2nd Floor, Zainab Tower, 9-11, B-Block Commercial, Architect Society, Lahore.

Ph. +92 423 513 2277 Cell. +92 332 513 2277

www.catscontests.org

UAE OFFICE

International CATS Contests Tourist Club, Abu Dhabi, UAE.

Ph. +971 2 6810335

Cell: +971 55 1344501

www.catscontests.org