



INTERNATIONAL  
**CATS CONTESTS**  
COMPETENCE & APTITUDE TESTING SERVICES  
**FASTEST GROWING CONTESTS IN PAKISTAN**

**2023**

**QUESTION  
BOOKLET**

**GRADE 7 & 8  
JUVENILES**

Time Allowed: 90 Mins.  
Maximum Marks: 90

**ICATS**  
**MATHEMATICS**  
**CONTEST 2023**



# ICATS MATHEMATICS CONTEST 2023

## JUVENILES (GRADE 7 & 8)

TIME ALLOWED : 90 MINUTES, MAXIMUM MARKS : 90

TOTAL QUESTIONS : 30 MCQS

### INSTRUCTIONS

1. DON'T START ATTEMPTING THE PAPER UNTIL INSTRUCTED BY THE INVIGILATORS.
2. INSTRUCTIONS FROM THE EXAMINATION INVIGILATORS MUST BE CARRIED OUT PROMPTLY.
3. CAREFULLY RECHECK YOUR NAME, FATHER NAME, SCHOOL NAME, ADDRESS ETC AT THE BUBBLE SHEET / ANSWER SHEET.
4. RECORD ALL ANSWERS ON THE BUBBLE SHEET ONLY. 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. USE OF LEAD PENCIL IS NOT ALLOWED.
6. USE OF ANY HELPING MATERIAL INCLUDING CELL PHONES AND ELECTRONIC DEVICES IS STRICTLY PROHIBITED.
7. EVERY CORRECT ANSWER EARNS THREE POINTS. THERE WOULD BE NEGATIVE MARKING. ONE POINT WOULD BE DEDUCTED FOR EVERY INCORRECT ANSWER.
8. CANDIDATES MAY NOT LEAVE THE EXAMINATION ROOM UNESCORTED FOR ANY REASON, AND THIS INCLUDES USING THE WASHROOM.
9. NO MATERIALS OR ELECTRONIC DEVICES SHALL BE BROUGHT INTO THE ROOM.
10. THERE ARE FIVE CATEGORIES OF THE CONTEST AS UNDER:
  - A. TODDLERS (GRADE 1 & 2)
  - B. KIDS (GRADE 3 & 4)
  - C. JUNIORS (GRADE 5 & 6)
  - D. JUVENILES (GRADE 7 & 8)
  - E. ADOLESCENTS (GRADE 9 & 10 / O-LEVELS)
11. REGISTERED STUDENTS CAN PARTICIPATE IN THE CONTEST.
12. NO CANDIDATE SHALL TAKE OUT OF THE HALL ANY ANSWER BOOK(S) OR PART OF AN ANSWER BOOK, WHETHER USED OR UNUSED, OR OTHER SUPPLIED MATERIAL.
13. IF A PARTICIPANT DOES NOT UNDERSTAND A WORD OR PHRASE ON THE EXAM PAPER, NEITHER EXAMINER NOR INVIGILATOR IS PERMITTED TO ANSWER.
14. FOR INFORMATION ABOUT UPCOMING CONTESTS OR PROVIDING VALUABLE FEEDBACK, PLEASE VISIT [WWW.CATSCONTESTS.ORG](http://WWW.CATSCONTESTS.ORG)
15. ANY ACADEMIC MISCONDUCT OR MALPRACTICE MUST BE REPORTED TO INTERNATIONAL CATS CONTESTS AT [INFO@CATSCONTESTS.ORG](mailto:INFO@CATSCONTESTS.ORG)

**Q1.** In which story the answer to the question is 0?

- A** Maggie has a new video game called Sorcerer's Mission. Before she reached the final level, she collected 400 magic beans. During the final level, she earned 400 magic beans as a bonus! How many magic beans did Maggie end the game with?
- B** Maggie has a new video game called Sorcerer's Mission. Before she reached the final level, she collected 400 magic beans. During the final level, she bought a new robe for her character, which cost 400 beans. How many magic beans did Maggie end the game with?
- C** Both A & B
- D** None of these



**Q2.** When Danish began his science experiment, he had 20 milliliters of an unknown solution. During the experiment, the change in the volume of the solution was -9 milliliters. What was the final volume of the solution?

To solve the problem, Danish added  $20 + (-9)$  and came up with an answer of -11 milliliters. Is Danish correct? Why or why not?

- A** Yes, Danish is correct.
- B** No. The answer should have been 11 milliliters, not -11 milliliters, because the volume should not be negative.
- C** No. Danish should have subtracted  $20 - (-9)$  because the volume decreased.
- D** None of these.



**Q3.** Jamshaid plans to serve cheese and crackers as an appetizer at his next dinner party. He buys 0.8 pounds of cheddar cheese. If the cheese costs \$5.35 per pound, how much does he spend?

- A** \$3.28                      **B** \$4.28                      **C** \$4.82                      **D** \$5.35

**Q4.** In which story could you use the quotient  $450 \div 22$  to answer the question?

- A** The surface of Mercury can get as hot as  $450^{\circ}\text{C}$ . If the highest surface temperature on Mercury is about 22 times that on Mars, about how hot can Mars get?
- B** The surface of Mercury can get as hot as  $450^{\circ}\text{C}$ . If the highest surface temperature on Venus is about 22 degrees greater than on Mercury, about how hot can Venus get?
- C** Both A & B
- D** None of these



**Q5.** In a class test containing 15 questions, 4 marks are given for every correct answer and (-2) marks are given for every incorrect answer.

- (i) Fatima attempts all questions but only 9 of her answers are correct.  
What is her total score?
- (ii) One of her friends gets only 5 answers correct.  
What will be her score?

- A** (i) 23, (ii) 10      **B** (i) 24, (ii) 10      **C** (i) 24, (ii) 0      **D** (i) 26, (ii) 0



**Q6.** When the value of Coral Island Bookstore stock fell 5 points, the change was represented online as -5 points.

The next day, the change in value of the stock was represented as 6 points.  
Which of these describes the change in the stock's value?

- A** It fell 6 points.      **C** It rose 6 points
- B** It neither rose nor fell      **D** None of these

**Q7.** John has just moved to a new town and wants to share plates of baked goods with his neighbors. He has 10 cookies and 15 brownies to share, and wants to split them equally among the plates with no food left over. What is the greatest number of plates he can make to share?

**A** 2 plates

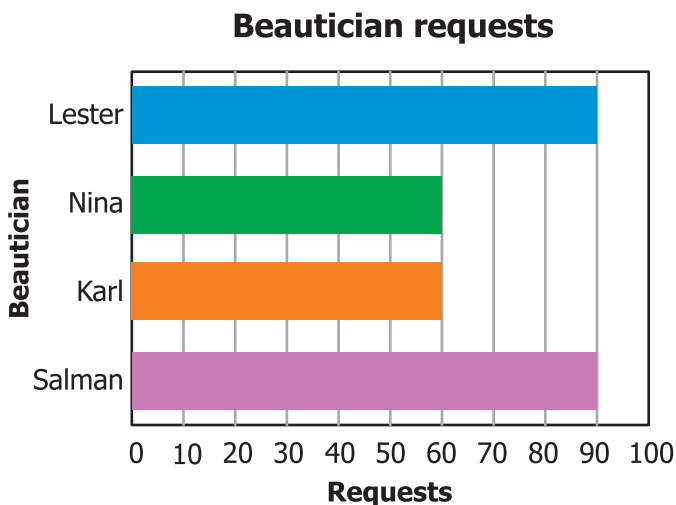
**B** 3 plates

**C** 4 plates

**D** 5 plates



**Q8.** A beauty salon in Princeton has four beauticians and keep track of how often clients request each one specifically.



What fraction of requests were for Salman?

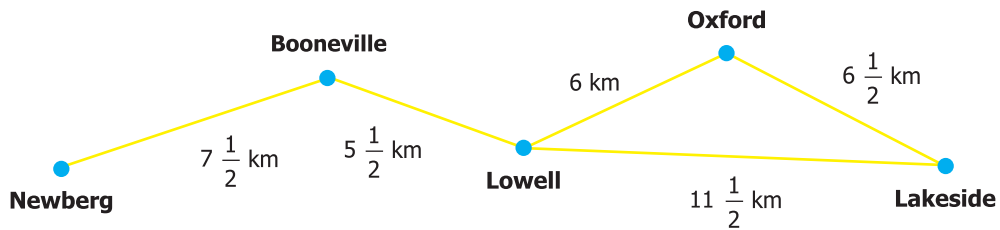
**A**  $\frac{3}{10}$

**B**  $\frac{8}{10}$

**C**  $\frac{9}{10}$

**D**  $\frac{10}{9}$

- Q9.** Using the paths shown below, how long is the shortest route from Booneville to Lakeside?



- A** 16 km      **B** 17 km      **C** 18 km      **D** 19 km

- Q10.** Your mother said you to buy  $\frac{2}{5}$  of a kilogram of oysters,  $\frac{2}{5}$  of a kilogram of crab meat, and  $\frac{3}{5}$  of a kilogram of mussels. How much would it cost as per following price list?

shrimp	\$2/kg
mussels	\$4/kg
lobster meat	\$5/kg
crab meat	\$4/kg
oysters	\$3/kg

- A** \$4.8      **B** \$5      **C** \$5.2      **D** \$5.4

**Q11.** Aslam is extremely exhausted after playing a one-day cricket match. He wants to go home by taking the shortest route. There are two roads that lead to his home shown as below:

Road A: 14,082 yards

Road B: 8 miles

Which road will Aslam take?

**A** Road A

**B** Road B

**C** Both are equal

**D** Information is incomplete



**Q12.** The attendance at three concerts was 876, 647 and 856. Which expression shows how to estimate the total attendance at the concerts?

**A**  $800 + 600 + 800$

**C**  $900 + 600 + 900$

**B**  $900 + 700 + 900$

**D**  $1,000 + 700 + 900$



**Q13.** "My Little Builders" building blocks come in sets of different sizes. This scatter plot shows the number of blocks in some sets and how much each set costs.

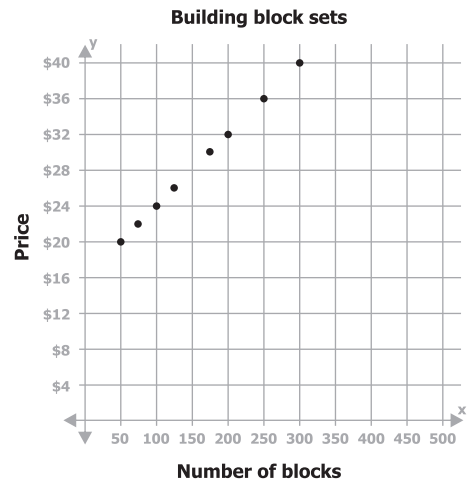
Which of the following is a reasonable estimate for the price of a 150-block set?

**A** \$8

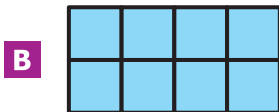
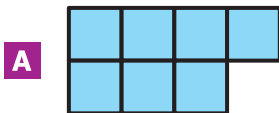
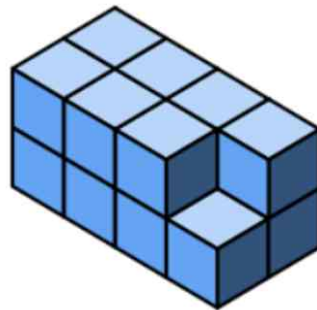
**B** \$20

**C** \$28

**D** \$70



**Q14.** If you look at this object from the top, what will you see?



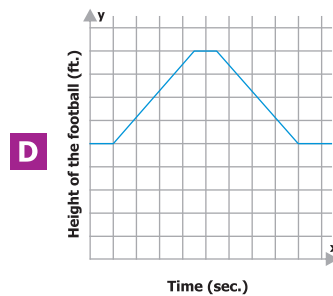
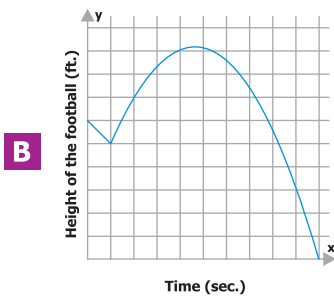
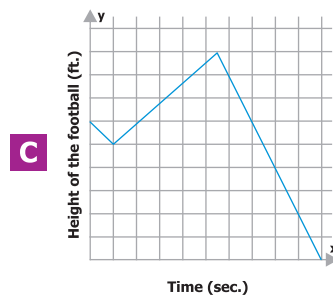
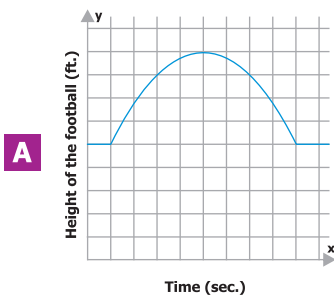
**C** Both A & B

**D** None of these



**Q15.** Fatima is teaching her little sister, Musfirah, how to catch a football. Fatima holds the football in her hand and throws it high and long in the air. Musfirah has to run back several steps, but she catches it successfully and holds on to it.

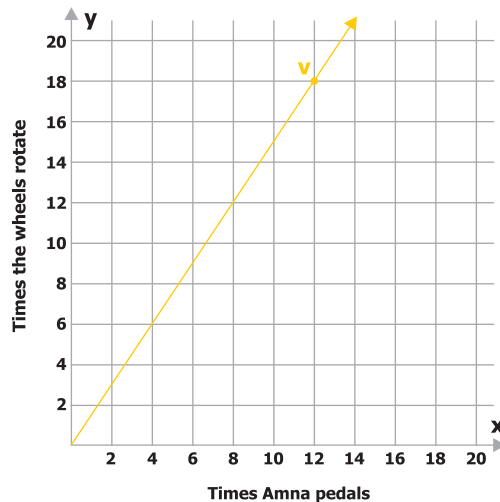
Which graph could show the height of the football over time?





- Q16.** Amna has outgrown the bike she rode when she was small. So, for her twelfth birthday, her parents surprise her with a five-speed Blaze Rider 2000! Amna has never had a bike with multiple speeds before, and she is eager to learn how it works. She starts by testing the middle speed.

The graph shows the proportional relationship between the number of times Amna pedals and the number of times the wheels rotate.



What does the point V represent?

- A** The wheels rotate 18 times when she pedals 12 times.      **C** Both A & B
- B** The wheels rotate 12 times when she pedals 18 times.      **D** None of these



- Q17.** The price of a toy increased from Rs. 4 to Rs. 7. What is the percent of change in the price?

- A** 75% decrease      **B** 75% increase      **C** 3% increase      **D** 3% decrease

**Q18.** At soccer practice, Hassan warms up by kicking balls at the goal. Yesterday, Hassan made 24 goals in 3 minutes. Today, he only spent 2 minutes kicking balls at the goal.

If Hassan made goals at the same rate, how many goals did he make today?

**A** 16 goals

**B** 18 goals

**C** 20 goals

**D** 22 goals



**Q19.** You want to buy a desk chair which has a sale price of \$36, keeping in view the following discount coupon, what was the original price?



**A** \$40

**B** \$45

**C** \$50

**D** \$60



**Q20.** A restaurant critic reviewed restaurants in Oxford and Fairview. In Oxford, the critic gave 33 positive reviews and 18 negative reviews. In Fairview, 11 of the reviews were positive and 5 were negative. In which city did the restaurant critic give a lower ratio of negative reviews to positive reviews?

**A** The critic gave a lower ratio in Oxford.

**B** The critic gave a lower ratio in Fairview.

**C** Neither. The critic gave the same ratio in both cities.

**D** None of these.

**Q21.** Maryam and two friends are at a movie theater. They have \$52.00 and spend \$34.50 of it on movie tickets. They also buy 3 drinks that each cost the same amount. After buying the movie tickets and drinks, they have \$4.00 remaining. How much did each drink cost?

**A** \$2.50

**B** \$3.83

**C** \$4.00

**D** \$4.50



**Q22.** Find the value of A in the following:

$$\begin{array}{r} 1A \\ \times A \\ \hline A9 \end{array}$$

**A** 1

**B** 2

**C** 3

**D** 4



**Q23.** A store manager collects information about the number of people who visit his store each week. The information, collected over a 3-week period, is listed below:

- The number of people that visited the store in week 1 was 3,200.
- The number of people that visited the store in week 2 was 10% more than week 1.
- The number of people that visited the store in week 3 was 15% more than week 2.

How many people visited the store in week 3?

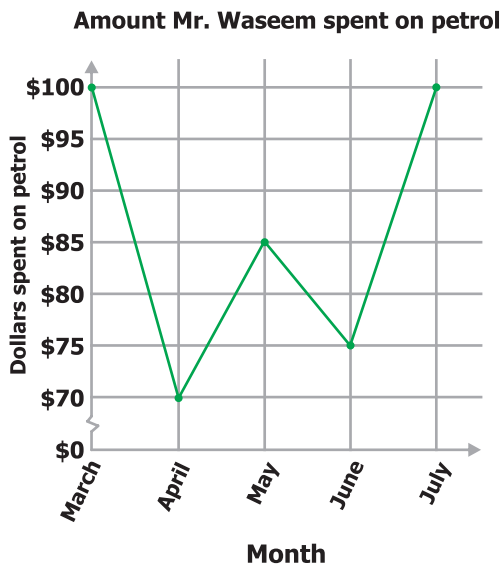
**A** 3,520

**B** 3,680

**C** 4,000

**D** 4,048

- Q24.** Mr. Waseem recorded the amount he spent on petrol each month to see if it would be cheaper to take the train to work instead of car.



According to the graph, when was the rate of change greater?

- A** Between April and May
- B** Between June and July
- C** Between May and June
- D** None of these



- Q25.** Ayesha owns a dog grooming business. The prices for two services are listed below.

- \$31.50 for a dog wash
- \$17.00 for a nail trim

A customer receives an 18% discount when paying for both a dog wash and a nail trim. What is the total price the customer will pay for a dog wash and a nail trim with the discount?

- A** \$18.00
- B** \$39.77
- C** \$42.83
- D** \$48.50

**Q26.** Write an algebraic expression for:

77 more than the product of 2 and u.

**A**  $2u - 77$

**B**  $77 + 2u$

**C**  $2u = 77$

**D** 77 more than  $2u$



**Q27.** The members of sewing circle are making blankets to give to shelters. This week, they made 18 twin-size blankets and 38 queen-size blankets, using a total of 414 meters of fabric. Last week, the members completed 18 twin-size blankets and 20 queen-size blankets, which required 252 total meters of fabric. How much fabric is used for the different sizes of blankets?

A twin-size blanket uses \_\_\_\_\_ meters of fabric and a queen-size one uses \_\_\_\_\_ meters.

**A** 3 meters, 7 meters

**C** 4 meters, 8 meters

**B** 3 meters, 8 meters

**D** 4 meters, 9 meters



**Q28.** A scuba diver dives 24 feet below the water's surface. The diver then rises 10 feet, stops and then dives downward another 18 feet. How far, in feet, does the diver need to rise upward to reach the water's surface?

**A** 10 feet

**B** 18 feet

**C** 24 feet

**D** 32 feet



**Q29.** Which one of the following is not a graphical means of showing data?

**A** Pictograms

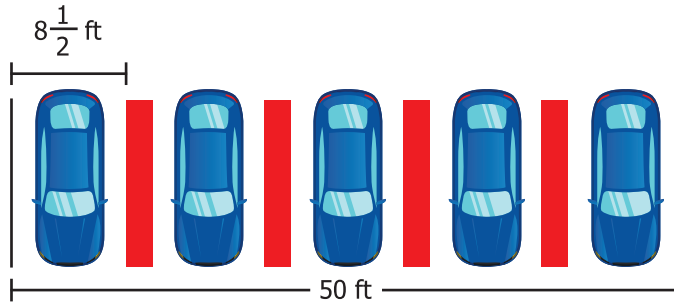
**B** Texts

**C** Bar Charts

**D** Graphs

- Q30.** The design of an office parking lot is shown below. The distance between each parking space is filled with a red block.

**DIAGRAM OF PARKING LOT**



What is the width of a red block between each parking space in the parking lot?

**A**  $\frac{17}{20}$  foot

**B**  $1\frac{1}{2}$  feet

**C**  $1\frac{7}{8}$  feet

**D**  $1\frac{7}{10}$  feet

National Toppers  
ICATS  
Art Contest  
2023

Student Name	Father Name	Grade	School
ZOHA SUALEH	MIR M. SHAH SUALEH	1	FUTURE WORLD SCHOOL
SHAZIL ASAF	ASAF JAVED	1	ARMY PUBLIC SCHOOL & COLLEGE FOR BOYS
MUHAMMAD WALEE KHAN	FAHEEM ASHRAF	2	NUST CREATIVE LEARNING SCHOOL & COLLEGE
RAYYAN IRFAN	DR. MUHAMMAD YOUSAF	3	DHA JUNIOR SCHOOL
ANABIYA	HUSSAIN ABID	3	APS&C PMA
MAHNOOR	GHULAM MUSTAFA	4	AES SCHOOL FOR GIRLS
MEERAB KHAN	ADNAN ASIF KHAN	5	LAHORE GRAMMAR SCHOOL (JUNIOR SECTION)
MAHEEN MUNIR	MUNIR KHAN	6	FAUJI FOUNDATION SCHOOL
TALHA ALI KHAN	SADAQAT ALI	7	JOINT STAFF PUBLIC SCHOOL & COLLEGE
AREESHA MOBEEN	MOBEEN TAHIR	8	LAHORE GRAMMAR SCHOOL
ASMA NAEEM	NAEEM AMIN	9	ALLAMA IQBAL PUBLIC GIRLS HIGH SCHOOL
SUMERA KHAN	IMRAN KHAN	10	AES SCHOOL FOR GIRLS

*Congratulations*

National Toppers  
ICATS  
Creative Writing  
Contest  
2023

Student Name	Father Name	Grade	School
FAARIS ALI QURESHI	DANYAL QURESHI	1	LAHORE GRAMMAR SCHOOL
KHADIIJA AHSAN	AHSAN MAJEED	2	LAHORE GRAMMAR SCHOOL
ZAYYAN MUSTAFA	QAMAR MUSTAFA	3	ARMY PUBLIC SCHOOL (BOYS & GIRLS)
SIBTAIN ALI KHAN	FAWAD ALI PATHAN	4	PAK-TURK MAARIF INTERNATIONAL SCHOOLS & COLLEGES
SAARIM THARANI	IMRAN NOORALI THARANI	5	AGA KHAN SCHOOL GARDEN
M. AHMED JADOON		6	THE CITY SCHOOL (RAVI CAMPUS)
ARISHA MAZHAR	MAZHAR ALI	7	KOHSAR CHILDREN'S ACADEMY
VERDAH SAHAR USMAN	USMAN TARIQ SHEIKH	7	LAHORE GRAMMAR SCHOOL
SALEHA SHAHID	SHAHID WAHEED	8	THE CITY SCHOOL (PESHAWAR CAMPUS)
HALEEMA USMAN	USMAN AHMED	8	TNS BEACONHOUSE
UMAIMA AIMEN	MUBASHIR MUSTAFA	9	RANGERS PUBLIC SCHOOL
RANIA ZAKIA MALIK	TAHIR NAEEM MALIK	10	ISLAMABAD COLLEGE OF ARTS AND SCIENCES

*Congratulations*

Compete if you are the best

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