

NATIONAL MATHEMATICS CONTEST JUVENILES (GRADE 7 & 8)



INTERNATIONAL
CATS CONTESTS
COMPETENCE & APTITUDE TESTING SERVICES

NATIONAL MATHEMATICS CONTEST

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. WRITE YOUR NAME, FATHER NAME, SCHOOL NAME, ADDRESS ETC AT THE BUBBLE SHEET ONLY.
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 UNSCORTED FOR ANY REASON, AND THIS INCLUDES USING THE WASHROOM.
9. THERE ARE SIX 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)
 - F. SENIORS (GRADE 11 & 12 / A-LEVELS)
10. ONLY REGISTERED STUDENTS CAN PARTICIPATE IN THE CONTEST.
11. 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.
12. IF A PARTICIPANT DOES NOT UNDERSTAND A WORD OR PHRASE ON THE EXAM PAPER, NEITHER EXAMINER NOR INVIGILATOR IS PERMITTED TO ANSWER.
13. FOR INFORMATION ABOUT UPCOMING CONTESTS OR PROVIDING VALUABLE FEEDBACK, PLEASE VISIT WWW.CATSCONTESTS.ORG
14. ANY ACADEMIC MISCONDUCT OR MALPRACTICE MUST BE REPORTED TO INTERNATIONAL CATS CONTESTS AT INFO@CATSCONTESTS.ORG

Q1. Ahmad has Rs.999 and Bilal has Rs.1,111

How much money does Bilal need to give to Ahmad, so that they would have the same amount of money?

A Rs.1

B Rs.51

C Rs.56

D Rs.91

Q2. If 1 gram of grass seed is needed to plant 1 square meter, how much grass seed will be needed to plant an entire field that is 110 meters long and 70 meters wide?

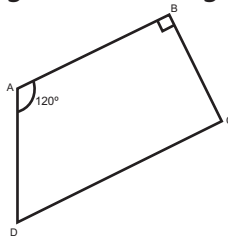
A About 7.7 kilograms

B About 15 kilograms

C About 37.5 kilograms

D About 77 kilograms

Q3. In the quadrilateral ABCD, angle A is 120 degrees, angle D is two thirds of angle C, and angle B is 90 degrees. Find angle C.



A 40°

B 45°

C 60°

D 90°

Q4. Brad mixes seeds to attract birds. His blue mix is 55% sunflower and 45% bluegrass. His Rye mix is 30% sunflower and 70% ryegrass. His Master mix combines some of each of the Blue and Rye mixes. If Master mix is 45% sunflower, how much of each kg of Master mix is Blue mix?

A 360 g

B 400 g

C 600 g

D 650g

Q5. X is a whole number.

$X + 7$ is greater than 33 and $X - 7$ is less than 22.

Find all the numbers that X could be.

A None

B 27

C 28

D 27 and 28

Q6. Two cousins visited Jane today. One cousin visits every 42 days. The other visits every 429 days. They will next visit on the same day in ___?___ days.

A 4296

B 6006

C 9009

D 18018

Q7. The measure of the smaller angle formed by the hour and minute hands of a circular clock at 2:46 is

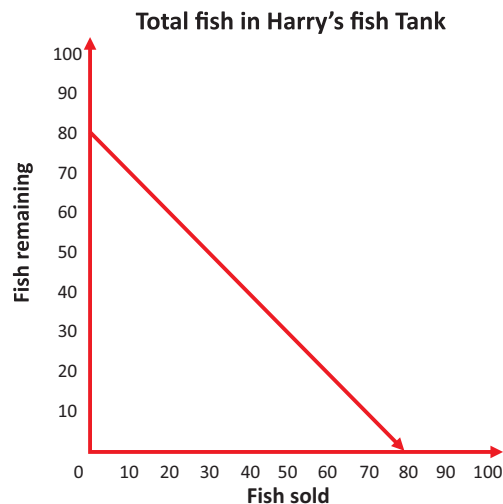
A 84°

B 137°

C 167°

D 174°

Q8. This graph shows how the number of fish remaining in Harry's fish tank depends on the number of fish he has sold.



How many fish must Harry sell in order to have 30 fish left in the tank?

A 50

B 80

C 110

D 120

Q9. A store purchased a microwave for £ 100 and marked it up 50%. Martin makes a 4% commission on all of his sales. How much commission did he make when he sold the microwave?

A 4

B 6

C 8

D 9

Q10. If I multiply all whole numbers from 1 through 100, the largest power of 4 that is a factor of the product is

A

 4^{25}

B

 4^{32}

C

 4^{48}

D

 4^{50}

Q11. 200 employees work for company XYZ, where the ratio of men to women is 11 to 9. If 30 men leave the company and 10 women are hired. What is the new ratio of men to women?

A

 $4/5$

B

 $5/4$

C

 $9/10$

D

 $9/11$

Q12. Of my books, 85% are new and the rest are used. Some are biographies, 70% of which are new. What is the ratio of the fraction of new books that are biographies to the fraction of used books that are biographies?

A

7:17

B

14:17

C

17:14

D

17:7

Q13. Mr. Barry is angry. He has 4 grubs left after he tried to divide 256 grubs equally among his cubs. There could be ___?___ cubs.

A

5

B

6

C

8

D

11

Q14. John started a business in which he earned Rs.100 for the first day. Rs.500 on the second day. Rs.900 on the third day. Rs.1300 on the fourth day. and so on. What is his earning in day 1000?

A

Rs. 399100

B

Rs. 399700

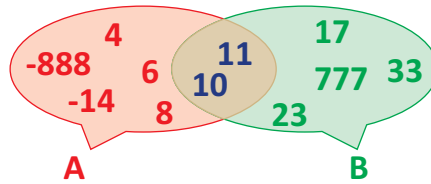
C

Rs. 400000

D

Rs. 400500

Q15. The diagram shows two sets of number: set A and set B. Find the correct descriptions for sets A and B.



A A = even numbers;
B = odd numbers

B $A < 13$; $B > 9$

C $A < 10$; $B > 10$

D A = red ; B = green

Q16. Today is my birthday. My age today, in months, is 72 times my age 5 years ago, in years. My age today, in years, is

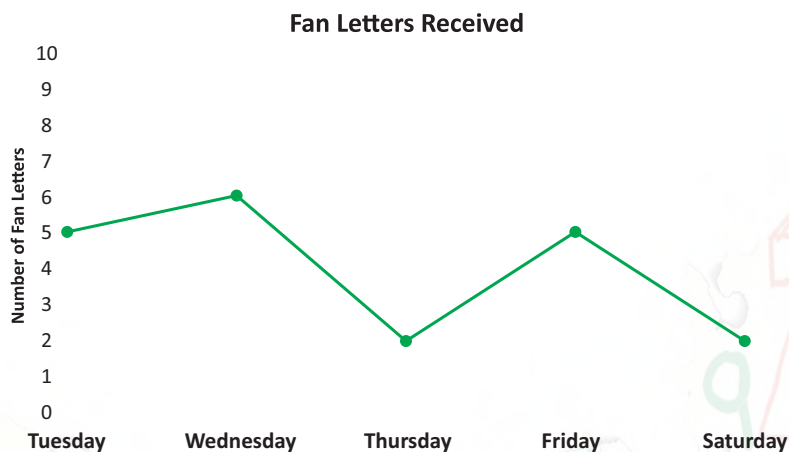
A 6

B 7

C 8

D 12

Q17. An actor was informed how many fan letters he received each day. What is the mean of the numbers?



A 4

B 5

C 20

D none of these

Q18. Which statement is NOT correct?



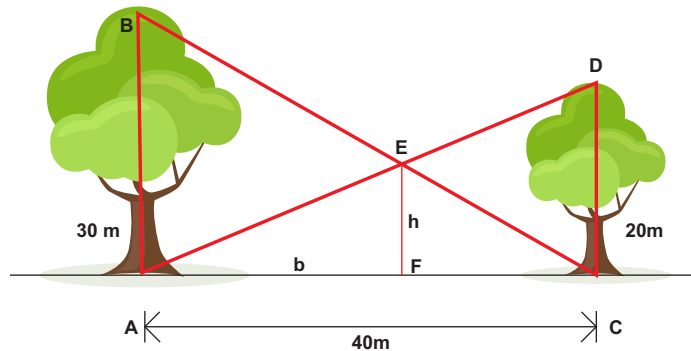
A 9 days = 216 hours

B 9 weeks = 63 days

C 9 years = 109 months

D 9 years = 36 quarters

Q19. Two trees of height 20m and 30m have ropes running from the top of each tree to the bottom of the other tree. How high above the ground do the ropes intersect? The trees are 40m apart.



A 6m

B 12m

C 18m

D 24m

Q20. The number halfway between 45674567 and 67896789 is

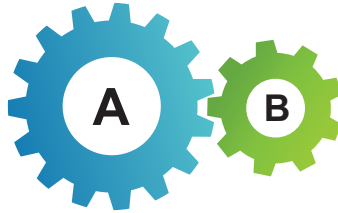
A 55443322

B 55556666

C 56565656

D 56785678

Q21. Two gear wheels A and B are in contact. One wheel (A) has 36 teeth, the other (B) has 24 teeth. How many times must the smaller wheel turn before the larger wheel completes a revolution?



A 1.0

B 1.5

C 2.0

D 2.5

Q22. Gerry had 24 LEGO bricks and Jane had 6 Bricks. Gerry gave some of his bricks to Jane so that she ended with twice as many bricks as Gerry. How many bricks did Gerry give to Jane?

A 12 Bricks

B 13 Bricks

C 14 Bricks

D 15 Bricks

Q23. The tenths digit of ___?___ is larger than its hundredths digit.

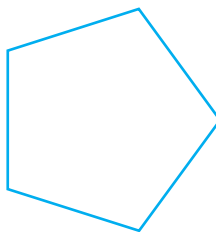
A 231.23

B 543.21

C 642.46

D 654.56

Q24. The diagram shows a convex polygon.



What is the sum of the exterior angle measures, one at each vertex, of this polygon?

A 90

B 180

C 270

D 360

Q25. I wear my headphones only on cloudy days. the day after each cloudy day is a sunny day. How many times a week I wear my headphones?

A 3 times

B 4 times

C 5 times

D 6 times

Q26. Tessa bought 8 postcards during 2 days of vacation. How many days will Tessa have to spend on vacation before shw will have bought a total of 20 postcards? Assume the relationship is directly proportional.

A 2

B 3

C 4

D 5

Q27. The mass of Earth is 5.9742×10^{24} kg.
The mass of Venus is 4.8685×10^{24} kg.
The mass of Mars is 6.4185×10^{23} kg.
The mass of Moon is 7.3477×10^{22} kg.
What is the smallest mass from the following?

A Mars and Venus together

C 10 Mars

B 100 "Moons"

D Earth

Q28. If my doctor's "IN" sign is a square with a perimeter of 4, then its area is

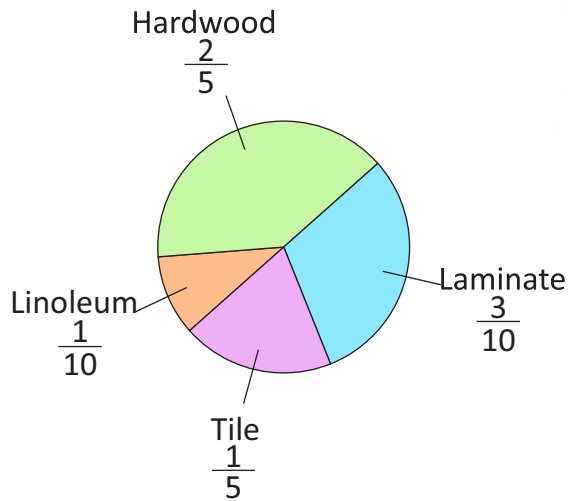
A 1

B 4

C 8

D 16

Q29. *Dodson's Flooring sponsored a survey about home flooring preferences. Which list is arranged from the least popular flooring to the most popular flooring?*



A linoleum, laminate, tile, hardwood

B laminate, linoleum, tile, hardwood

C linoleum, tile, laminate, hardwood

D linoleum, laminate, hardwood, tile

Q30. *Alex, Bill and Craig have a combined weight of 111 kilograms. Alex weighs 44 kilograms and Bill weighs seven-eighths of Alex's weight. What is Craig's weight in kilograms?*

A 2.25 kg

B 28.5 kg

C 31.5 kg

D 32.5 kg