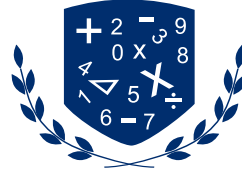




INTERNATIONAL CATS CONTESTS

COMPETENCE & APTITUDE TESTING SERVICES



ICATS MATHEMATICS CONTEST 2018

**GRADE 7 & 8
JUVENILES**

ICATS MATHEMATICS CONTEST 2018

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 (ANSWER 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 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. ONLY 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
15. ANY ACADEMIC MISCONDUCT OR MALPRACTICE MUST BE REPORTED TO INTERNATIONAL CATS CONTESTS AT INFO@CATSCONTESTS.ORG

Q1. The temperature in Chicago was -3°F at 8 A.M. The temperature increased 5°F by noon. The temperature then decreased 7°F by 4 P.M. What was the temperature in Chicago at 4 P.M.?

A -15°F

B -9°F

C -5°F

D -1°F

Q2. Mr. Smith asked his students whether they prefer to go to a museum or the zoo for a field trip. He found that 35% of the students prefer to go to a museum, 45% prefer to go to the zoo, and the rest have no preference. What is the ratio of students who have no preference to the students who prefer to go to the museum?

A 1:4

B 1:5

C 4:7

D 4:9

Q3. A movie is being shown on television. The movie is scheduled for a 150-minute time period. There will be some 6-minute commercial breaks (b) throughout the movie. The actual length of the movie is 114 minutes. Which equation could be used to find b , the number of 6-minute commercial breaks?

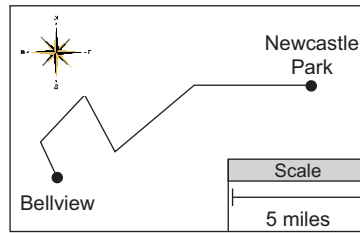
A $150=6(114 +b)$

B $150=114b + 6$

C $114 =150 - 6b$

D $114 =6(150 -b)$

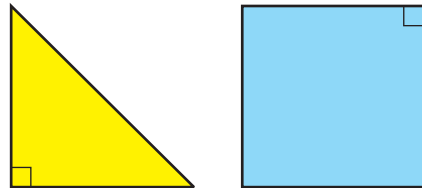
- Q4.** Roberto rode his bicycle from Bellview to Newcastle Park and back on the bicycle path shown on the map.



Which is closest to the roundtrip distance Roberto traveled?

- A** 6 miles **B** 15 miles **C** 24 miles **D** 30 miles

- Q5.** Look at the two figures below.



Which could not describe the intersection of these two figures?

- A** a line segment **B** a point **C** a right angle **D** a ray

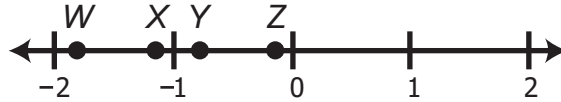
- Q6.** Shelley received the four cards shown below.



She was asked to put the cards in order from least to greatest value. Which list shows the correct order of the cards?

- A** P, T, R, S **B** S, P, T, R **C** T, P, R, S **D** T, R, P, S

Q7. Which point on the number line is closest to the location of -1.2 ?



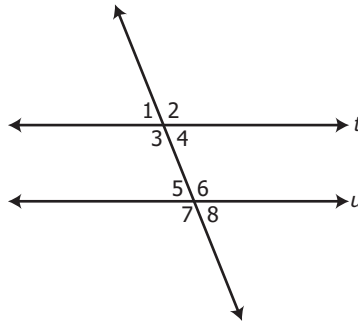
A W

B X

C Y

D Z

Q8. Parallel Lines t and u when cut by Transversal v form eight angles, as shown in the diagram below.



If the measure of Angle 2 is 112° , what is the measure of $\angle 5$?

A 68°

B 72°

C 112°

D 248°

Q9. Coach Jenson will order soccer uniforms from one of the stores listed below.

Store A sells 15 uniforms for a total of \$449.85.

Store B sells 10 uniforms for a total of \$300.00.

Store C sells uniforms for \$32.00 per uniform.

Store D sells 2 uniforms for a total of \$58.00.

Which store has the lowest price per uniform?

A Store A

B Store B

C Store C

D Store D

Q10. The table below shows the masses of some of the planets in our solar system.

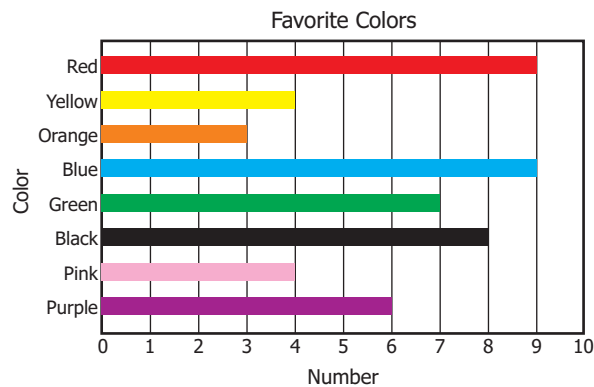
Mass of Planets

Planet	Mass (in kilograms)
Earth	7.3483×10^{22}
Jupiter	1.8987×10^{27}
Uranus	8.6849×10^{25}
Neptune	1.0244×10^{26}

Which list of planets is in order from the least mass to the greatest mass?

- A** Neptune, Jupiter, Earth, Uranus **B** Jupiter, Neptune, Uranus, Earth
C Earth, Uranus, Neptune, Jupiter **D** Uranus, Earth, Jupiter, Neptune

Q11. The graph shows the favorite colors chosen by some middle school students.



Which statement is supported by the information in the graph?

- A** Fewer than 30% of the students chose red, yellow, or orange as their favorite color.
B More than $\frac{1}{10}$ of the students chose pink as their favorite color.
C Exactly 18% of the students chose blue as their favorite color.
D Exactly $\frac{2}{5}$ of the students chose green, black, or purple as their favorite color.

Q12. Kiara downloaded 264 pictures from her cell phone to her computer. These pictures took up 528 megabytes of space on her computer. Each picture took up the same amount of space. How many megabytes do 35 of these pictures take up?

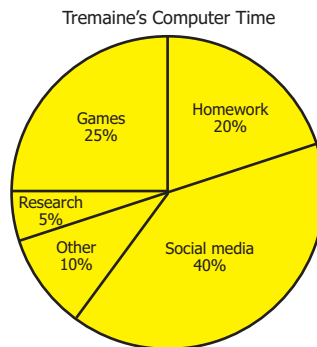
A 18 MB

B 70 MB

C 8MB

D 23 MB

Q13. The circle graph shows how Tremaine divided his time on the computer last week.



Tremaine used the computer a total of 30 hours last week. How many more hours did Tremaine use the computer to play games than to do research?

A 6 hours

B 20 hours

C 7.5 hours

D 1.5 hours

Q14. A pilot takes a taxi from the airport to a hotel. The taxi driver charges a \$2.50 initial charge plus \$2.65 per mile. Which equation can be used to find y , the total cost of the trip, if x represents the number of miles of the trip?

A $y = 2.50x + 2.65$

B $y = 2.65(x + 2.50)$

C $y = 2.65 \times 2.50$

D $y = 2.65x + 2.50$

Q15. Leo wants to buy some shoes. He found the shoes at three different stores for a price of \$35. The stores are each having a sale.

- Store X is offering 15% off the price of the shoes.
- Store Y is offering \$5 off the price of the shoes.
- Store Z is offering a $\frac{1}{5}$ discount off the price of the shoes.

Which statement about the sale price of these shoes is true?

A Store X has the best sale price of \$20.

B Store Z has the best sale price of \$28.

C Store Y has the best sale price of \$30.

D Store Z has the best sale price of \$7.

Q16. The price of a television was reduced from \$250 to \$200. By what percentage was the price of the television reduced?

A 20%

B 25%

C 80%

D 50%

Q17. Which statement is Not correct

A 9 years = 45 quarters

B 9 years = 108 months

C 9 days = 216 hours

D 9 weeks = 63 days

- Q18.** Six post office employees are working today.
It takes one employee one minute to serve one person.

How long would you have to wait in the line if you hold number 321?

Now Serving

1 2 3

- A** 33 minutes **B** a half an hour **C** 20 minutes **D** 45 minutes

- Q19.** Eight students travel in a car. They speak English, French and Spanish.
Everybody speaks two languages. Four students speak French. Five students speak Spanish.

How many students speak English?

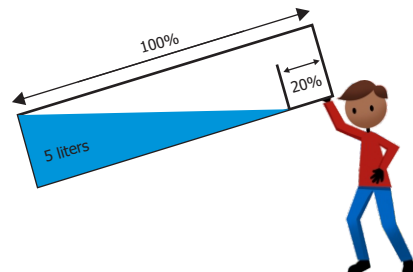


- A** 7 **B** 6 **C** 8 **D** 9

- Q20.** The aquarium was full of water. A boy has tipped it on its side, so five liters are left.

How much water does the aquarium hold when it is full of water.

- A** 12.5 liters
B 12 liters
C 11 liters
D 16 liters



Q21. Maggie read a book in five days, Monday through Friday. Each day, she read 12 more pages than the previous day. She read 47 pages on Thursday. How many pages were in the book?

A 59

B 116

C 140

D 175

Q22. How many seconds are in 8.4 minutes?

A 485

B 490

C 500

D 504

Q23. Jui Chin put \$10 into savings on January 1, \$20 on February 1, \$30 on March 1, and so on. Each month he saved \$10 more than the previous month.

Mui Tze put \$1 into savings on January 1, \$2 on February 1, \$4 on March 1, and so on. Each month she saved twice as much as the previous month.

At the end of one year, how much more had Mui Tze saved than Jui Chin?

A \$1268

B \$3315

C \$3435

D \$7410

Q24. A 9.0 earthquake and resulting tsunami struck Japan at approximately 3 PM on Friday, March 11, 2011. About 211 hours later, 80-year old Sumi Abe and her 16-year old grandson Jin Abe were found alive in the damaged kitchen of their collapsed house. When were they found?

A 10 AM Saturday, March 19

B 11 PM Saturday, March 19

C 10 AM Sunday, March 20

D 11 PM Sunday, March 20

Q25. When you multiply five million times four billion the answer is "2" followed by how many zeroes?

A 12

B 13

C 15

D 16

Q26. Using these eight digits (each once), write any two 3-digit numbers and one 2-digit number. Add those three numbers.

1 2 3 4 5 7 8 9

What is the remainder when that sum is divided by 9?

A 0

B 1

C 2

D 3

Q27. Three men start work at 6:00 AM to dig two holes. Assume that each worker digs at the same rate. One of them works alone and finishes digging a 3 foot by 3 foot by 3 foot hole at 8:00 AM. The other two men work together to dig a 6 foot by 6 foot by 6 foot hole. At what time will these two men finish?

A 8:00 AM

B 10:00 AM

C 2:00 PM

D 4:00 PM

Q28. In basketball, a player can score by making 2-point shots, 3-point shots, or 1 point for each free throw made. In one game, Loni made four of seven 2-point shots, two of five 3-point shots, and attempted 16 free throws. If she scored 24 points, what percent of her free throws did she make?

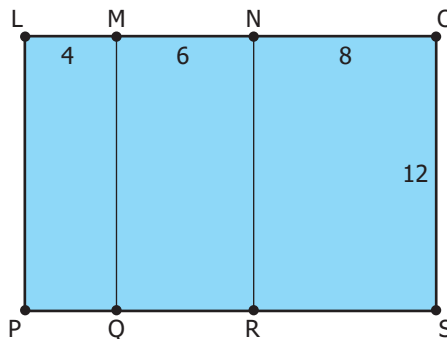
A 37.5%

B 50%

C 60%

D 62.5%

Q29. Rectangle **LOSP** is shown below. The lengths, in units, of some of the line segments are also shown. Line segments **MQ** and **NR** are perpendicular to line segment **LO**.



Which shape is similar to rectangle **LOSP**?

A **LMQP**

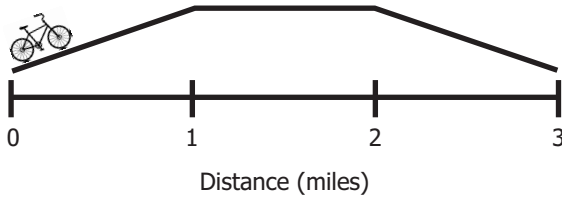
B **LNRP**

C **MNRQ**

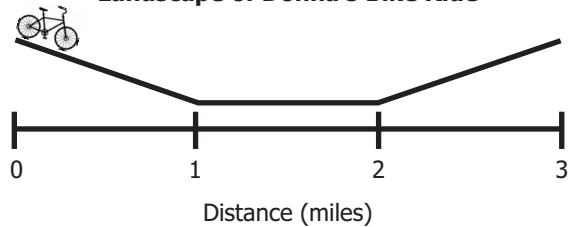
D **OSRN**

Q30. Donna rode her bike for three miles. She traveled 18 miles per hour the first mile, 15 miles per hour the second mile, and 21 miles per hour the third mile. Which diagram shows the most likely landscape of Donna's bike ride?

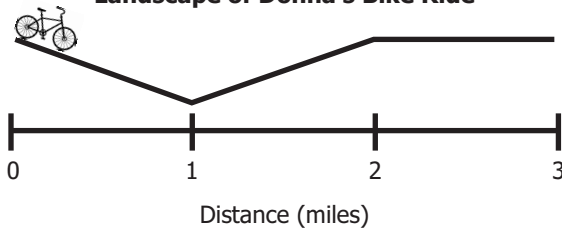
A Landscape of Donna's Bike Ride



B Landscape of Donna's Bike Ride



C Landscape of Donna's Bike Ride



D Landscape of Donna's Bike Ride

