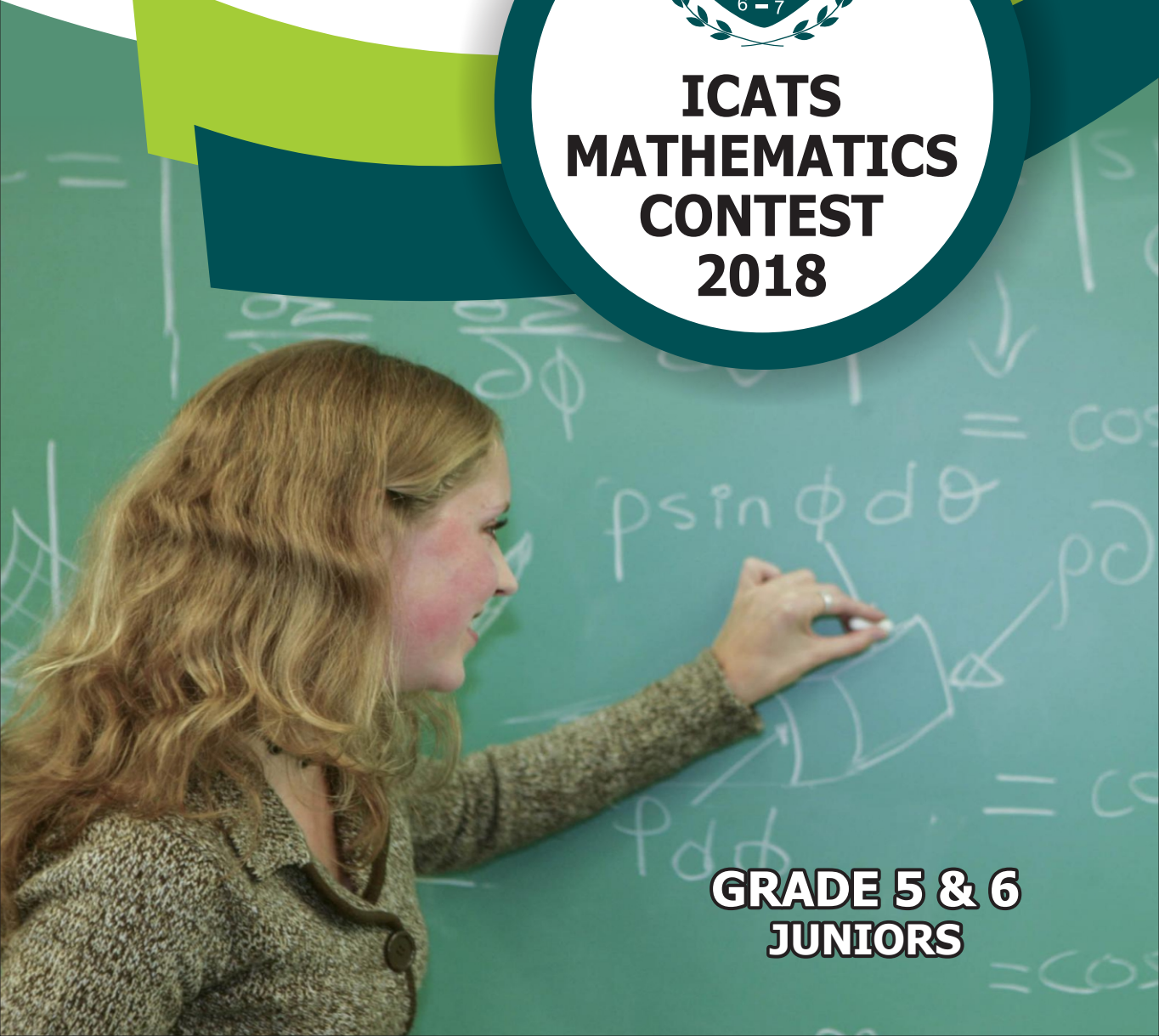
INTERNATIONAL
CATS CONTESTS
COMPETENCE & APTITUDE TESTING SERVICES

ICATS MATHEMATICS CONTEST 2018



GRADE 5 & 6
JUNIORS

ICATS MATHEMATICS CONTEST 2018

JUNIORS (GRADE 5 & 6)

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. 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. **Use the number pattern below to answer the question.**

24, 41, 58, 75, 92

Which statement about the number pattern is true?

A The rule is Add 3 to the second digit.

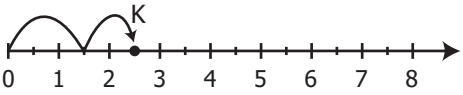
B The rule is Add 23 to the last number.

C An even number is added to find the next number.

D An odd number is added to find the next number.

Q2. **Kara went running 3 times this week. Each time, she ran 2.5 miles. Which number line has point K graphed so that it best represents the total distance Kara ran, in miles?**

A



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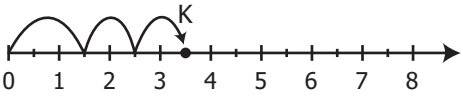

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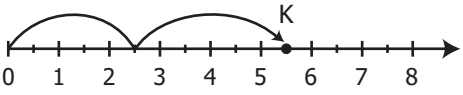

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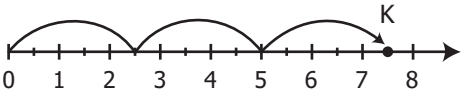


Q3. **The schedule for a music showcase includes 3 sets that are 20 minutes each and 1 set that is 40 minutes. There is a 10-minute break between each set. What is the total length of the music showcase?**

A 73 minutes **B** 110 minutes **C** 130 minutes **D** 210 minutes

Q4. **Ahmad has a goal to study for total of 10 hours this week.**

- On Monday, he studied for $1\frac{1}{2}$ hours.
- On Tuesday, he studied for $2\frac{1}{4}$ hours.

How many hours will Ahmad have to study during the rest of this week to reach his goal?

A $3\frac{3}{4}$ **B** $6\frac{1}{4}$ **C** $6\frac{2}{3}$ **D** $6\frac{3}{4}$

Q5. **Aubrey drew a figure with the characteristics listed below.**

exactly 1 pair of parallel sides
exactly 2 pairs of congruent angles
exactly 4 sides

Which type of figure did Aubrey draw?

A trapezoid **B** rhombus **C** hexagon **D** pentagon

Q6. **Heavy rains caused the water level of a lake to rise eight hundred sixty-four thousandths of a meter. Which number is equivalent to eight hundred sixty-four thousandths?**

A 0.0864 **B** 0.864 **C** 86,400 **D** 864,000

Q7. **A painter used 3 gallons of red paint and 2 gallons of white paint to make a road sign. There are 16 cups in a gallon. She also used 3 cups of clear paint to protect the sign. What information is not needed to determine the difference between the numbers of cups of red and white paint she used?**

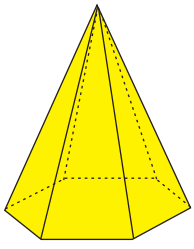
A the number of cups in a gallon

B the number of cups of clear paint she used

C the number of gallons of red paint she used

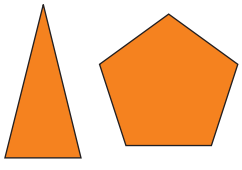
D the number of gallons of white paint she used

Q8. **Look at the three-dimensional figure below.**



Which of these shows the two different types of face shapes in this figure?

A



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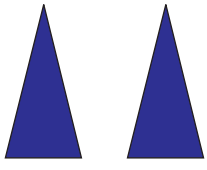

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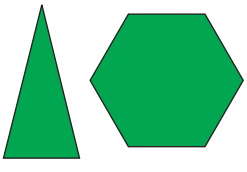

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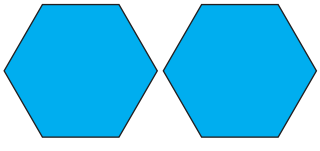
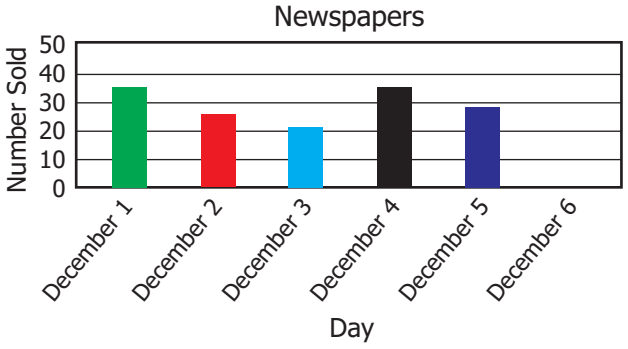


Q9. **The graph below shows the number of newspapers sold at a store on the first 5 days in December**



Based on the information in this graph, which is the best prediction of the number of newspapers sold on December 6th of the same year?

A 5 **B** 10 **C** 30 **D** 45

Q10. **Celia has a tent with two rectangular walls and a rectangular floor. The tent also has two triangular walls. Which three-dimensional figure best describes Celia's tent?**

A rectangular prism **B** triangular pyramid **C** triangular prism **D** pentagonal prism

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Q11. **Mr. Smith bought a package of 80 erasers for his students. He put an equal number of erasers in each of 22 bags. Which statement best describes the greatest number of erasers Mr. Smith could have put in each bag?**

A Each bag had 3 erasers, and 4 erasers were left over.

B Each bag had 3 erasers, and 6 erasers were left over.

C Each bag had 3 erasers, and 14 erasers were left over.

D Each bag had 3 erasers, and 16 erasers were left over.

Q12. **Elida will use six different wires for a science project. The fractions represent the diameters of these wires in inches.**

$$\frac{7}{16'} \quad \frac{1}{2'} \quad \frac{3}{8'} \quad \frac{9}{32'} \quad \frac{5}{16'} \quad \frac{15}{32'}$$

Which list shows the diameters of the wires in order from least to greatest?

A $\frac{1}{2'}$ $\frac{3}{8'}$ $\frac{7}{16'}$ $\frac{5}{16'}$ $\frac{15}{32'}$ $\frac{9}{32'}$

B $\frac{9}{32'}$ $\frac{15}{32'}$ $\frac{5}{16'}$ $\frac{7}{16'}$ $\frac{3}{8'}$ $\frac{1}{2'}$

C $\frac{1}{2'}$ $\frac{3}{8'}$ $\frac{5}{16'}$ $\frac{7}{16'}$ $\frac{9}{32'}$ $\frac{15}{32'}$

D $\frac{9}{32'}$ $\frac{5}{16'}$ $\frac{3}{8'}$ $\frac{7}{16'}$ $\frac{15}{32'}$ $\frac{1}{2'}$

Q13. **A housepainter mixed 5 gal of blue paint with every 9 gal of yellow paint in order to make a green paint. Which ratio of gallons of blue paint to gallons of yellow paint will make the same shade of green paint?**

A 30: 54 **B** 6: 10 **C** 10: 45 **D** 27: 15

Q14. **There are 90 girls and 60 boys in the sixth grade at a middle school. Of these students, 9 girls and 3 boys write left-handed. What percentage of the sixth graders at this middle school write left-handed?**

A 10% **B** 8% **C** 5% **D** 15%

Q15. **A team of workers took 167.3 hours to complete a task. A smaller team of workers will complete the same task, but it will take them 1.25 times as long as it took the first team. Based on this information, which statement is true?**

A The task will take the smaller team of workers 168.55 hours to complete, because 167.3 + 1.25 = 168.55.

B The task will take the smaller team of workers 179.8 hours to complete, because 167.3 + 1.25 = 179.8.

C The task will take the smaller team of workers 198.825 hours to complete, because 167.3 × 1.25 = 198.825.

D The task will take the smaller team of workers 209.125 hours to complete, because 167.3 × 1.25 = 209.125.

Q16. **A company spent 32% of its annual budget developing a new machine. What fraction of the company's budget was spent developing the new machine?**

A $\frac{1}{32}$ **B** $\frac{5}{16}$ **C** $\frac{8}{25}$ **D** $\frac{4}{125}$

Q17. **Which list shows the temperatures in order from coldest to warmest in degrees Fahrenheit?**

A $-10^{\circ}F$ $8^{\circ}F$ $-5^{\circ}F$ $0^{\circ}F$

B $-5^{\circ}F$ $-10^{\circ}F$ $0^{\circ}F$ $8^{\circ}F$

C $-10^{\circ}F$ $-5^{\circ}F$ $0^{\circ}F$ $8^{\circ}F$

D $0^{\circ}F$ $-5^{\circ}F$ $8^{\circ}F$ $-10^{\circ}F$

Q18. **Which statement about 3 multiplied by $\frac{2}{3}$ must be true?**

A The product is between 3 and 4.

B The product is less than $\frac{2}{3}$.

C The product is between $\frac{2}{3}$ and 3

D The product is greater than 4.

Q19. **Yvonne is researching the effect of education on annual income. A summary of her research is shown in the table.**

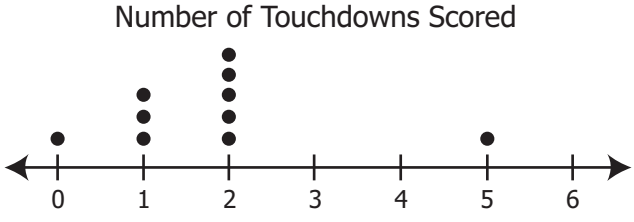
Effect of Education on Annual Income

Level of Education	Annual Income (dollars)
High school diploma	33,904
Associate's degree	40,820
Bachelor's degree	55,432

Based on the data in the table, how much more does a person with an associate's degree earn than a person with only a high school diploma over 10 years?

A $6,916 **B** $74,724 **C** $747,240 **D** $69,160

Q20. **The dot plot shows the number of touchdowns a football team scored in 10 games last season.**



Which statement best describes the data shown in the dot plot?

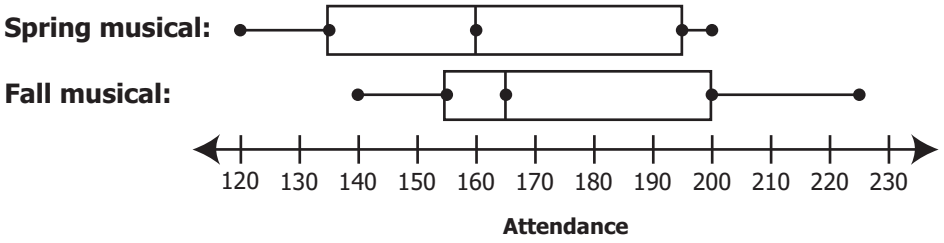
A The peak of the data is at 5.

B The data are clustered from 0 to 2.

C The data distribution has no gaps.

D The data distribution is symmetrical.

Q21. **The box plots summarize the attendance for the spring musical and the fall musical. Each musical was performed for six evenings.**



Which statement best describes the data represented in the box plots?

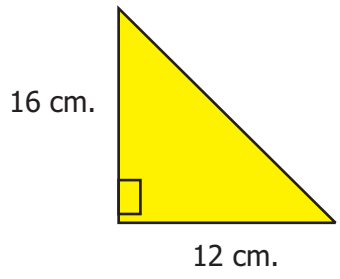
A The range in attendance for the fall musical is 85.

B The interquartile range for the spring musical is 45.

C For half the evenings at the fall musical, the attendance was less than 160 people.

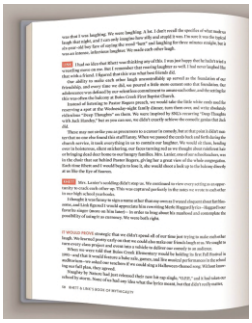
D For half the evenings at the spring musical, the attendance was between 155 and 200 people.

Q22. **What is the area in square centimeters of the triangle pictured below?**



A 28 square cm. **B** 56 square cm. **C** 96 square cm. **D** 192 square cm.

Q23. **How many pages do I turn over to go from page 33 to page 66? (Odd numbered pages are on the right.)**



A 17 **B** 34 **C** 33 **D** 16

Q24. **On Sunday, Doug started recording how many minutes he had read for the week. He also started recording how many minutes he had practiced the trumpet for the week. The table below shows the totals for the first four days.**

Time Spent Practicing the Trumpet and Reading This Week

Day	Total Minutes Spent Reading	Total Minutes Spent Practicing Trumpet
Sunday	12	15
Monday	24	30
Tuesday	36	45
Wednesday	48	60

Both patterns continue. Which statement about the patterns created by the numbers of minutes Doug has spent reading and practicing his trumpet this week is true?

A The number 90 will appear in both patterns.

B Both patterns switch back and forth between even and odd numbers.

C The sum of the corresponding terms in the patterns is always divisible by 3.

D The difference between corresponding terms in the patterns is always a multiple of 6.

Q25. **Sheila put a new lightbulb into a light socket. The lightbulb was on for 24 hours a day and burned out after 1,806 hours. Sheila did the work below to determine how many days the lightbulb lasted.**

$$
\begin{array}{r}
75 \\
24\overline{)1{,}806} \\
-168\downarrow \\
\hline
126 \\
-120 \\
\hline
6
\end{array}
$$

Sheila needs to finish the calculation to find how long, in days, the lightbulb lasted. Which statement about Sheila's calculations is true?

A Sheila completed the calculation by subtracting 24 – 6 to get 18 and found that the lightbulb lasted 75.18 days.

B Sheila completed the calculation by dividing 6 ÷ 24 to get 0.25 and found that the lightbulb lasted 75.25 days.

C Sheila completed the calculation by dividing 24 ÷ 6 to get 4 and found that the lightbulb lasted 75.4 days.

D Sheila completed the calculation by adding on 0.6 of a day since the remainder is 6 and found that the lightbulb lasted 75.6 days.

Q26. **Dennis started hiking at sea level. He recorded his starting position as 0. He climbed upward, and his elevation increased by 400 feet. He recorded his ending position as 400. Using this same method of measuring, a second hiker had a starting position of –40. Which statement describes the starting position of the second hiker?**

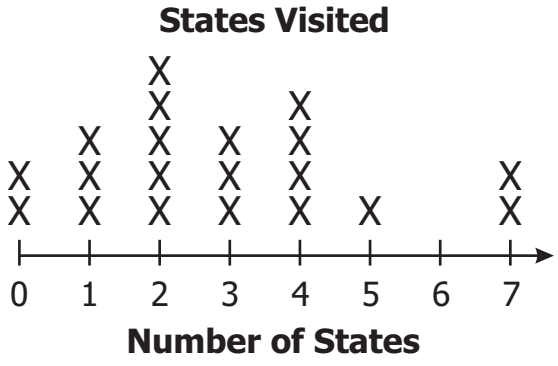
A The second hiker started 40 feet below sea level.

B The second hiker started 40 feet above sea level.

C The second hiker started 40 feet below the ending position of Dennis.

D The second hiker started 40 feet above the ending position of Dennis.

Q27. **Benny asked 20 students how many states, besides Louisiana, they had visited. The line plot below shows the results.**



Which statement **best** describes the distribution of the data from Benny's survey?

A Half of the students had visited exactly 2 states.

B Half of the students had visited 2 or more states.

C Half of the students had visited 2 or fewer states.

D Half of the students had visited the same 2 states.

Q28. **The table below shows the number of gallons of gasoline used and the miles driven for different types of cars.**

Gasoline Used and Miles Driven

Type of Car	Gallons of Gasoline Used	Miles Driven
A	5	106
B	10	204
C	15	298
D	20	392

Which type of car had the highest number of miles per gallon?

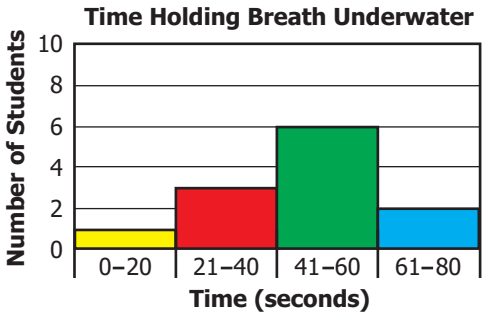
A type A **B** type B **C** type C **D** type D

Q29. **A swim instructor had a contest to see how many seconds her students could hold their breath underwater. The results from the contest are shown in the list below.**

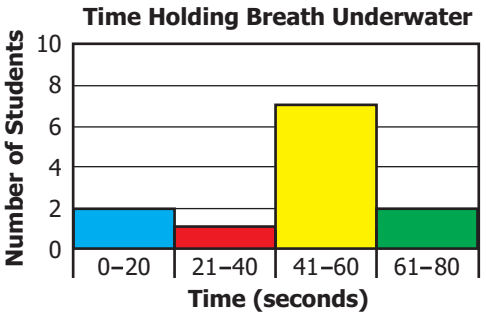
17, 34, 40, 41, 50, 50, 53, 56, 57, 58, 64, 70

Which histogram represents the results from the contest?

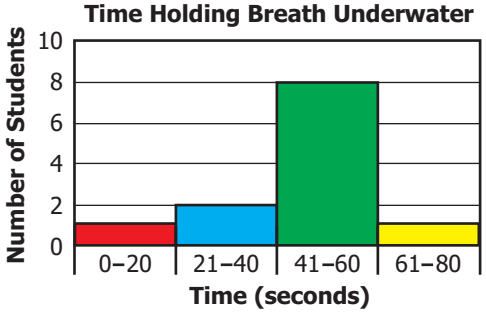
A



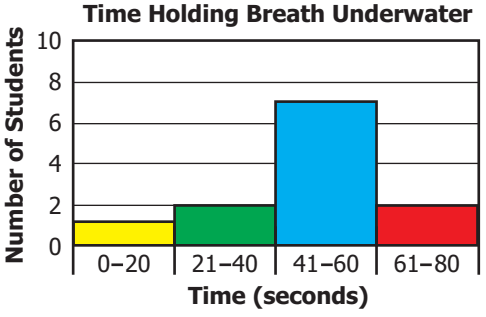
B



C



D



Q30. **John was ranked fifth from the top and sixteenth from the bottom after a test. How many students were there in his class?**

A 21 **B** 20 **C** 22 **D** 19