



FSP MATHEMATICS CONTEST

QUESTION BOOKLET

GRADE 7 & 8

2021

TIME ALLOWED: 90 Minutes

MAXIMUM MARKS: 90

**VIBRANT YOUNGSTERS
FAMOUS STUDENTS PLATFORM**

WE FAMOUS YOU

INSTRUCTIONS

- 1) DON'T START ATTEMPTING THE PAPER UNTIL INSTRUCTED BY THE INVIGILATOR.
- 2) INSTRUCTIONS FROM THE EXAMINATION INVIGILATOR 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 IN TO THE ROOM.
- 10) THERE ARE FIVE CATEGORIES OF THE CONTEST AS UNDER:
 - A) VIBRANT YOUNGSTERS (GRADE 1 & 2)
 - B) VIBRANT YOUNGSTERS (GRADE 3 & 4)
 - C) VIBRANT YOUNGSTERS (GRADE 5 & 6)
 - D) VIBRANT YOUNGSTERS (GRADE 7 & 8)
 - E) VIBRANT YOUNGSTERS (GRADE 9 & 10 / 0-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.FSPCOMPETITIONS.ORG
- 15) ANY ACADEMIC MISCONDUCT OR MALPRACTICE MUST BE REPORTED TO FSP VIBRANT YOUNGSTERS AT INFO@FSPCOMPETITIONS.ORG

Q.1) 200 employees work for company ABC 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 5/4

B 9/10

C 9/11

D 4/5

Q.2) 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 6

B 5

C 8

D 11

Q.3) 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?

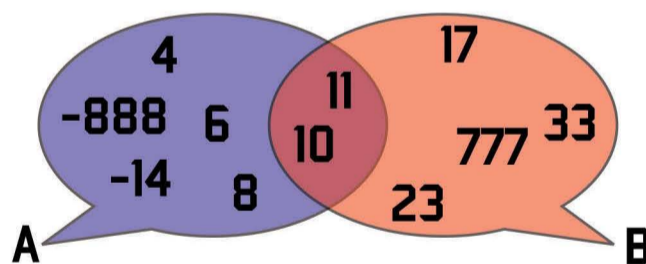
A 14:17

B 17:14

C 17:7

D 7:17

Q.4) 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 = blue ; B = red

Q.5) 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 399100

B 400000

C 400500

D 399700

Q.6) 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 12

B 8

C 7

D 6

Q.7) The number halfway between 45674567 and 67896789 is:

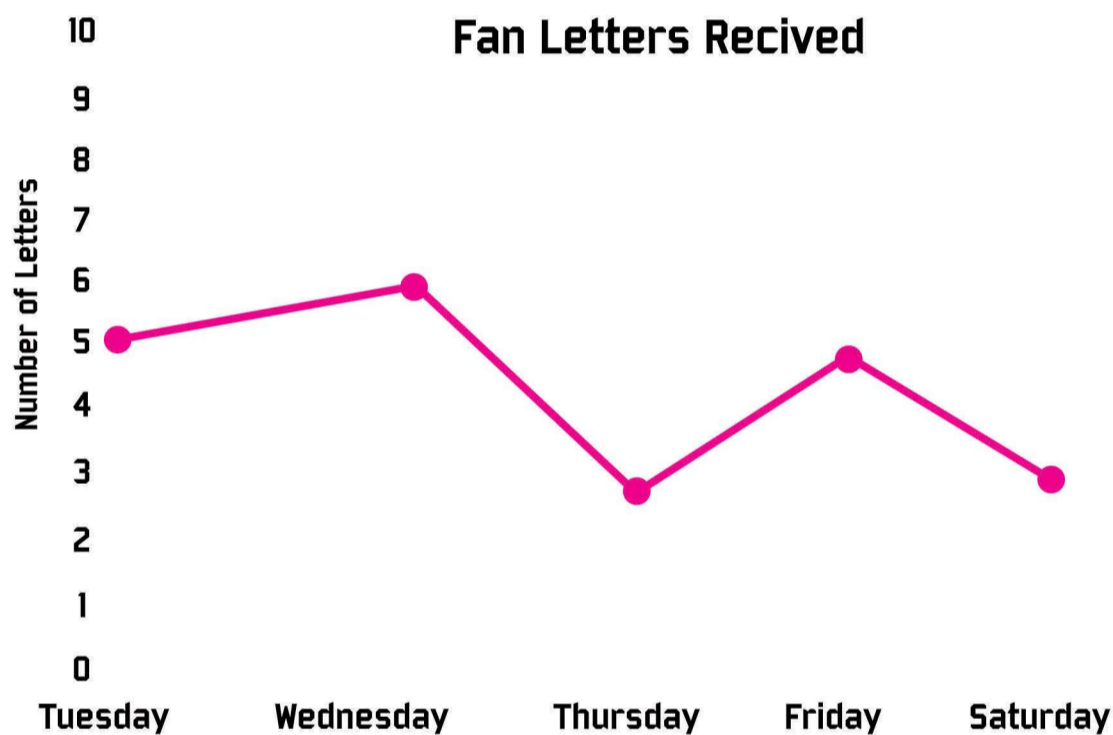
A 55443322

B 55556666

C 56565656

D 56785678

Q.8) 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

Q.9) 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 4:9

D 4:7

Q.10) 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.?

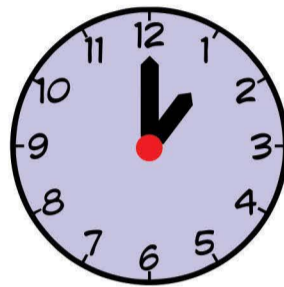
A -15°F

B -9°F

C -1°F

D -5°F

Q.11) Which statement is NOT correct?



A 9 days = 216 hours

B 9 weeks = 63 days

C 9 years = 36 quarters

D 9 years = 109 months

Q.12) 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?

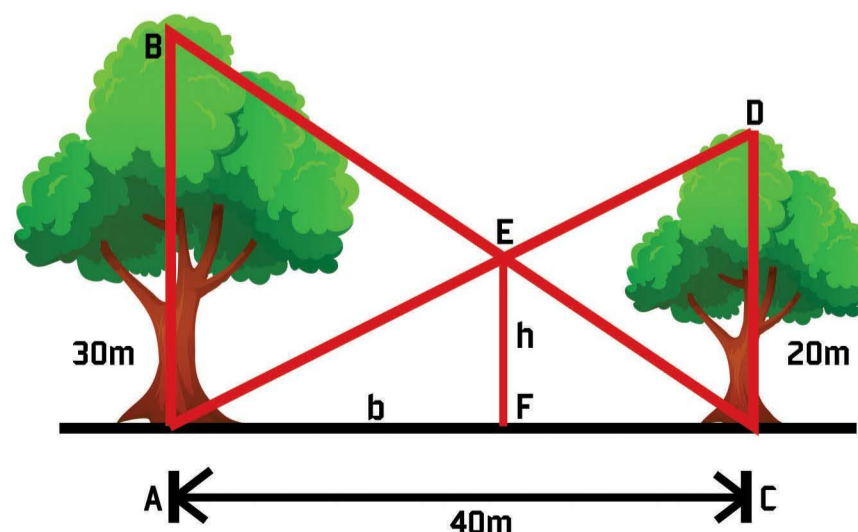
A $150 = 6(114+b)$

B $114 = 150 - 6b$

C $150 = 114b + 6$

D $114 = 6(150 - b)$

Q.13) 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.



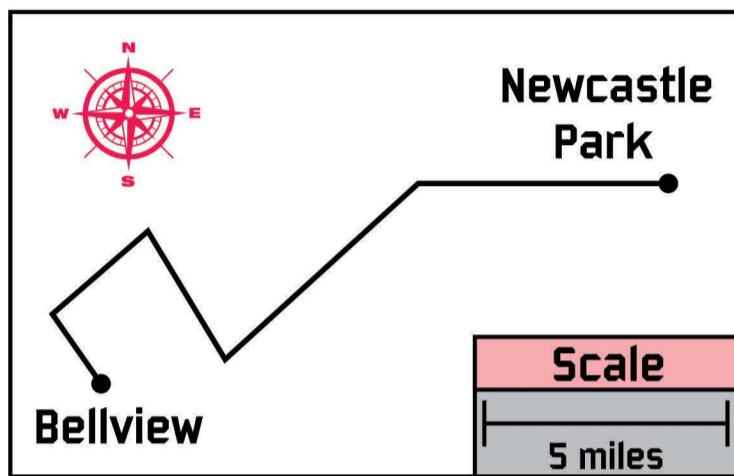
A 6m

B 12m

C 18m

D 24m

Q.14) 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?

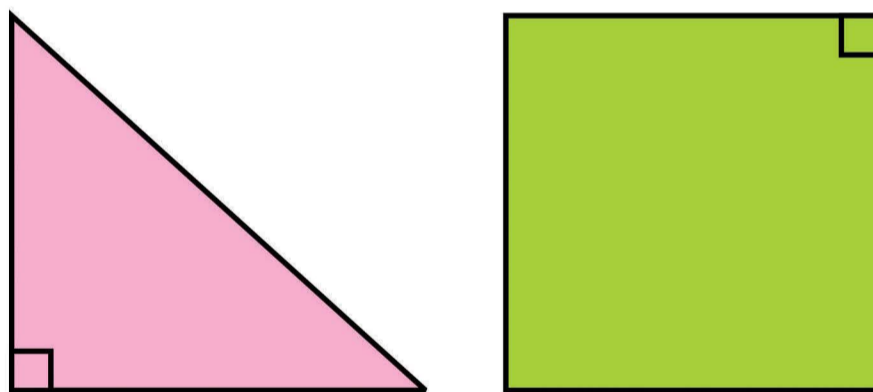
A 6 miles

B 15 miles

C 24 miles

D 30 miles

Q.15) Look at the two figures below:



Which could not describe the intersection of these two figures?

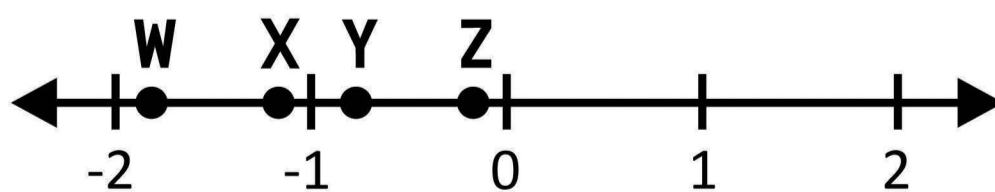
A line segment

B a point

C a right angle

D a ray

Q.16) Which point on the number line is closest to the location of -1.2



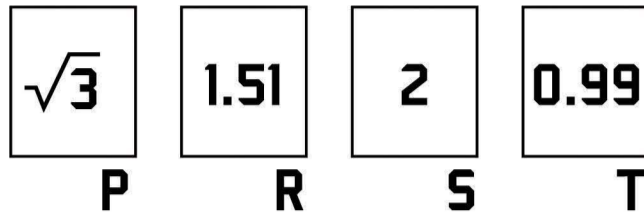
A w

B x

C y

D z

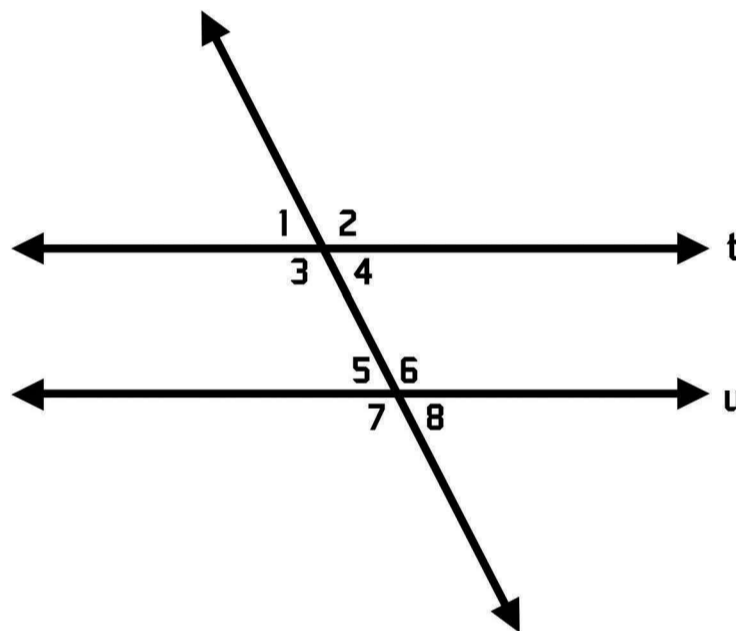
Q.17) Shelley received the four cards shown below.



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
-

Q.18) 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 L5?

- A 68° B 72° C 112° D 248°
-

Q.19) 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
-

Q.20) Which kind of numbers, when multiplied together, have a product that is an odd number?

- A even x even x even
 - B even x even x odd
 - C odd x odd x even
 - D odd x odd x odd
-

Q.21) A scientist studied the migration patterns of two types of whales.

The humpback whales traveled 2,240 miles in 28 days. The gray whales traveled 2,368 miles in 32 days.

If the humpback whales had traveled at the same rate for 32 days, how many more miles would they have traveled than the gray whales?

- A 128
 - B 192
 - C 280
 - D 408
-

Q.22) The table below shows the masses of some of the planets in our solar system.

| 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
-

Q.23) Tina is making a scale model of a monument that is 155 feet tall. She uses a scale of 1 inch = 5 feet. How tall should Tina make her model?

A 31 inches

B 5 inches

C 8 inches

D 13 inches

Q.24) The table below shows different possibilities for the number of games a team would need to win to maintain a certain percentage of wins.

Possible Baseball Games Won

| Number of Games Won | Number of Games Played |
|---------------------|------------------------|
| 6 | 10 |
| 24 | 40 |
| 36 | 60 |
| 42 | 70 |

Which ratio of the number of games won to the number of games played could also be included in this table?

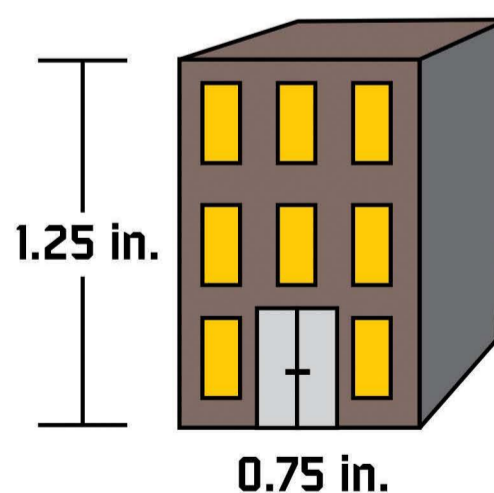
A 18:20

B 30:20

C 18:30

D 50:30

Q.25) The drawing of a building, shown below, has a scale of 1 inch to 30 feet.



What is the actual height, in feet, of the building?

A 22.5

B 24

C 37.5

D 40

Q.26) A trailer will be used to transport several 40-kilogram crates to a store. The greatest amount of weight that can be loaded onto the trailer is 1,050 kilograms. An 82-kilograms crate has already been loaded onto the trailer. What is the greatest number of 40-kilogram crates that can also be loaded onto the trailer?

A 24

B 25

C 26

D 27

Q.27) What is the missing number in the pattern below?

| | | | | | |
|---|---|----|----|---|-----|
| 2 | 6 | 18 | 54 | ? | 486 |
|---|---|----|----|---|-----|

A 162

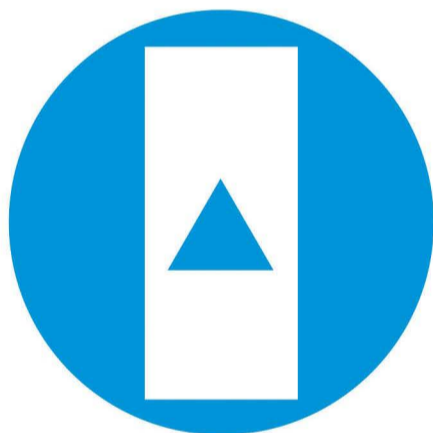
B 72

C 90

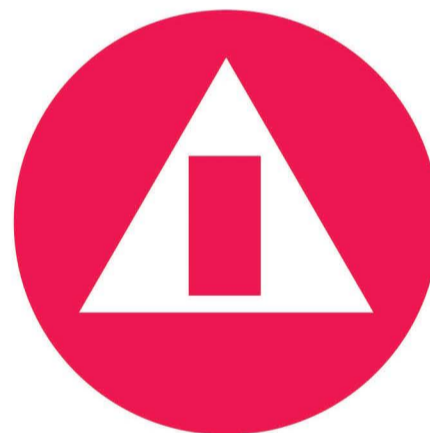
D 108

Q.28) Kendra drew a circle. Inside the circle she drew a triangle. Inside the triangle she drew a square. Which design did Kendra draw?

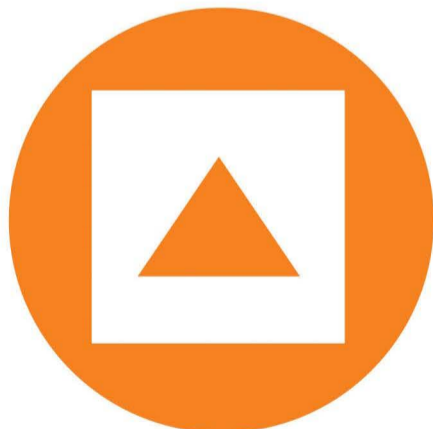
A



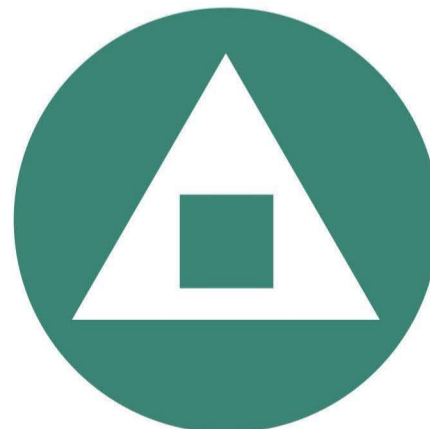
B



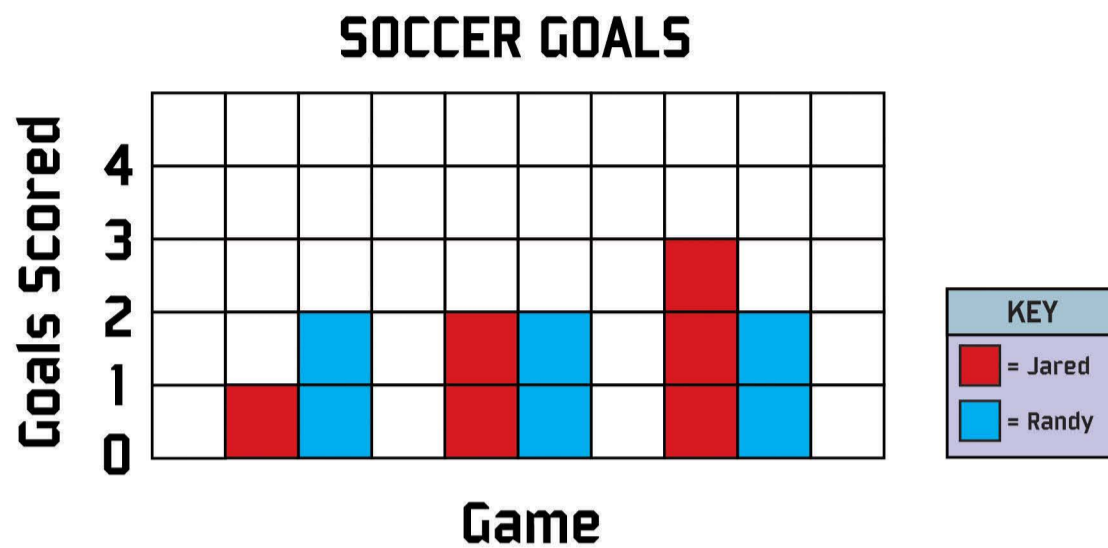
C



D



Q.29) Jared and Randy played in three soccer games. The graph below shows the number of goals they scored in each game.



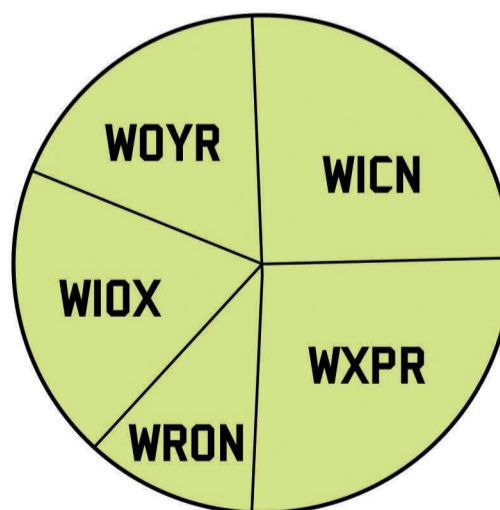
Which statement is true about Jared's and Randy's goals?

- A) Jared always scored more goals than Randy.
- B) Randy always scored more goals than Jared.
- C) The number of goals Jared scored increased each game.
- D) The number of goals Randy scored increased each game.

Q.30) The circle graph below shows the favorite radio stations of the students in Julie's school.

Julie's teacher asks her to estimate what percent of the students chose WXPR. Which best represents the percent of students who chose WXPR?

RADIO STATION SURVEY



- A) 30%
- B) 10%
- C) 25%
- D) 45%

THE END

ANSWER



SHEET

| Q. No. | Answer | | | | Q. No. | | | | |
|--------|------------------------------------|------------------------------------|-------------------------|-------------------------|--------|------------------------------------|------------------------------------|-------------------------|-------------------------|
| 1 | <input checked="" type="radio"/> A | <input type="radio"/> B | <input type="radio"/> C | <input type="radio"/> D | 16 | <input checked="" type="radio"/> A | <input type="radio"/> B | <input type="radio"/> C | <input type="radio"/> D |
| 2 | <input type="radio"/> A | <input checked="" type="radio"/> B | <input type="radio"/> C | <input type="radio"/> D | 17 | <input checked="" type="radio"/> A | <input type="radio"/> B | <input type="radio"/> C | <input type="radio"/> D |
| 3 | <input checked="" type="radio"/> A | <input type="radio"/> B | <input type="radio"/> C | <input type="radio"/> D | 18 | <input type="radio"/> A | <input checked="" type="radio"/> B | <input type="radio"/> C | <input type="radio"/> D |
| 4 | <input checked="" type="radio"/> A | <input type="radio"/> B | <input type="radio"/> C | <input type="radio"/> D | 19 | <input checked="" type="radio"/> A | <input type="radio"/> B | <input type="radio"/> C | <input type="radio"/> D |
| 5 | <input checked="" type="radio"/> A | <input type="radio"/> B | <input type="radio"/> C | <input type="radio"/> D | 20 | <input checked="" type="radio"/> A | <input type="radio"/> B | <input type="radio"/> C | <input type="radio"/> D |
| 6 | <input checked="" type="radio"/> A | <input type="radio"/> B | <input type="radio"/> C | <input type="radio"/> D | 21 | <input checked="" type="radio"/> A | <input type="radio"/> B | <input type="radio"/> C | <input type="radio"/> D |
| 7 | <input checked="" type="radio"/> A | <input type="radio"/> B | <input type="radio"/> C | <input type="radio"/> D | 22 | <input checked="" type="radio"/> A | <input type="radio"/> B | <input type="radio"/> C | <input type="radio"/> D |
| 8 | <input type="radio"/> A | <input checked="" type="radio"/> B | <input type="radio"/> C | <input type="radio"/> D | 23 | <input type="radio"/> A | <input checked="" type="radio"/> B | <input type="radio"/> C | <input type="radio"/> D |
| 9 | <input checked="" type="radio"/> A | <input type="radio"/> B | <input type="radio"/> C | <input type="radio"/> D | 24 | <input checked="" type="radio"/> A | <input type="radio"/> B | <input type="radio"/> C | <input type="radio"/> D |
| 10 | <input checked="" type="radio"/> A | <input type="radio"/> B | <input type="radio"/> C | <input type="radio"/> D | 25 | <input checked="" type="radio"/> A | <input type="radio"/> B | <input type="radio"/> C | <input type="radio"/> D |
| 11 | <input checked="" type="radio"/> A | <input type="radio"/> B | <input type="radio"/> C | <input type="radio"/> D | 26 | <input type="radio"/> A | <input checked="" type="radio"/> B | <input type="radio"/> C | <input type="radio"/> D |
| 12 | <input checked="" type="radio"/> A | <input type="radio"/> B | <input type="radio"/> C | <input type="radio"/> D | 27 | <input type="radio"/> A | <input checked="" type="radio"/> B | <input type="radio"/> C | <input type="radio"/> D |
| 13 | <input checked="" type="radio"/> A | <input type="radio"/> B | <input type="radio"/> C | <input type="radio"/> D | 28 | <input checked="" type="radio"/> A | <input type="radio"/> B | <input type="radio"/> C | <input type="radio"/> D |
| 14 | <input checked="" type="radio"/> A | <input type="radio"/> B | <input type="radio"/> C | <input type="radio"/> D | 29 | <input checked="" type="radio"/> A | <input type="radio"/> B | <input type="radio"/> C | <input type="radio"/> D |
| 15 | <input checked="" type="radio"/> A | <input type="radio"/> B | <input type="radio"/> C | <input type="radio"/> D | 30 | <input type="radio"/> A | <input checked="" type="radio"/> B | <input type="radio"/> C | <input type="radio"/> D |



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