**CRITIRCAL AND CREATIVE THINKING ITEMS**

**CLASS VIII : CHAPTER 4 : PRACTICAL GEOMETRY**

**INDEX**

|  |  |
| --- | --- |
| **S.No.** | **Theme of the item** |
|  | Construction of quadrilateral when all four sides and one diagonal is given |
|  | Construction of square |
|  | Golden Quadrilateral |
|  | Size of paper |
|  | Golden Ratio |
|  | Math Garden |
|  | Area Comparison |
|  | Construction of rhombus, given a side and a diagonal |

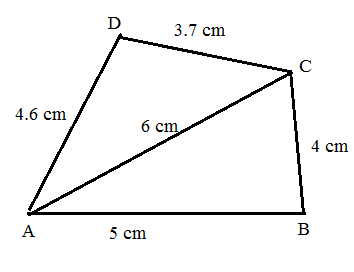
Name of the Vidyalaya: K .V. NEW CANTT , ALLAHABAD

KVS Region: VARANASI

|  |  |  |
| --- | --- | --- |
| Domain:  Mathematical Literacy | Theme: Construction of quadrilateral when all four sides and one diagonal is given | Class(es):VIII  expectedtime: 10 min.  Total Credit:2\*5=10 |
| Description of Item:   |  |  | | --- | --- | | YES | Text | | YES | Image | |  | Table | |  | Graph | |  | Map | |  | Poem | | Learning Outcome: understanding and calculation of Area of Quadrilateral. | |

A park to be constructed in the middle of society, the measurements for the boundaries of the park are as AB = 5 cm BC = 4 cm CD = 3.7 cm and AD = 4.6 cm. (where 1 cm is equal to 10 m)

A single path also needs to be constructed as the diagonal of the park with a measurement of 6 cm (1 cm = 10 m). But before starting the construction process the engineer made a sketch based on the measurement. The rough sketch of the park looks like as follows:-

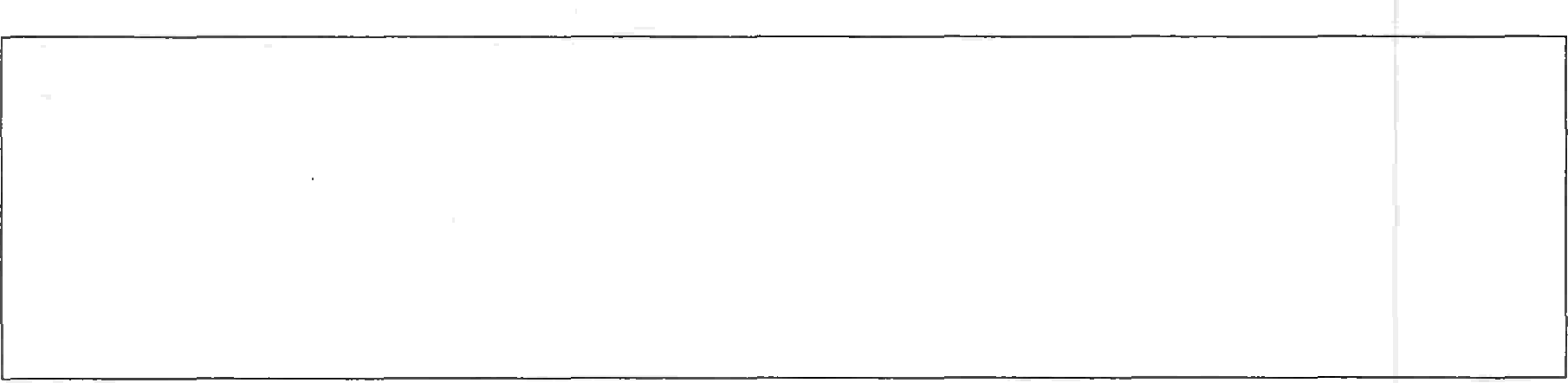


Now to get an exact shape they thought of constructing this shape using Geometrical instruments on paper.

Q. 1:- How many elements a quadrilateral having?  
A) 4 B) 6  
C) 8 D) 10

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | reproduction |
| Overarching Idea | quantity |
| Context | SCIENTIFIC |
| Item format | MCQ |
| Cognitive Process | INTERPRET |
| Proficiency Level | Proficiency Level 1 |

# CreditPattern



Q.1:- Full Credit: - Option D

No Credit: - Any other option.

.

Q. 2:- To draw a quadrilateral how many independent elements must be given?  
A) 3 B) 4  
C) 5 D) 6

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | REPRODUCTION |
| Overarching Idea | SPACE AND SHAPE |
| Context | SCIENTIFIC |
| Item format | MCQ |
| Cognitive Process | INTERPRET |
| Proficiency Level | Proficiency Level 1 |

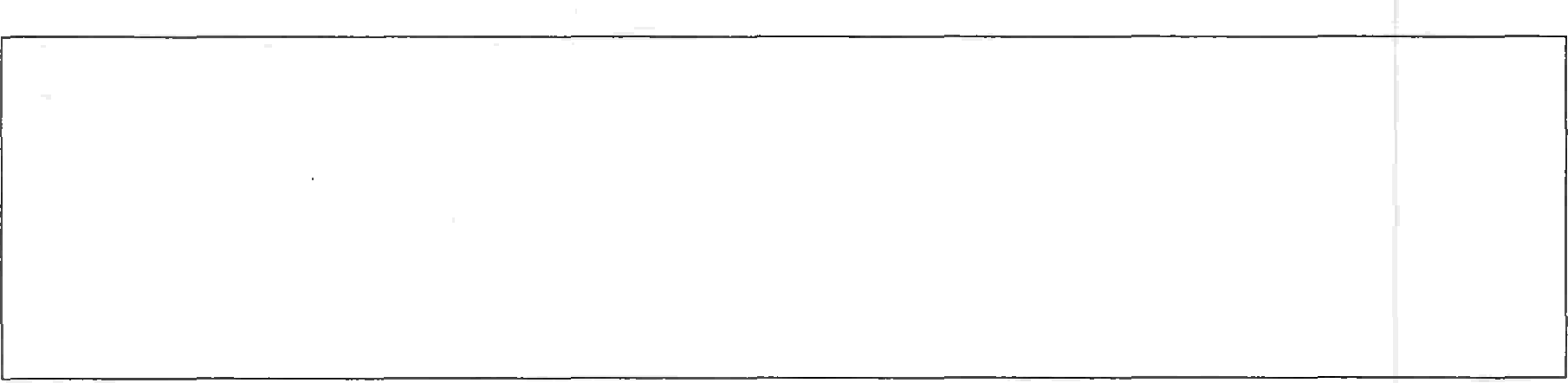
# Credit Pattern:

|  |
| --- |
| Q. 2:- Full Credit: - Option C  No Credit: - Any other option. |

Q. 3:- how many anglesdoes a quadrilateral have?  
A) 2 B) 3  
C) 4 D) All of these

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | CONNECTION |
| Overarching Idea | QUANTITY |
| Context | SCIENTIFIC |
| Item format | MCQ |
| Cognitive Process | INTERPRET |
| Proficiency Level | Proficiency Level 1 |

# Credit Pattern:



Q. 3:- Full Credit: - Option C

No Credit: - Any other option.

Q. 4:- Find the length of the boundary of the park.

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | CONNECTION |
| Overarching Idea | QUANTITY |
| Context | PUBLIC |
| Item format | MCQ |
| Cognitive Process | INTERPRET/ EVALUATE |
| Proficiency Level | Proficiency Level 1 |

Credit Pattern

|  |
| --- |
| Full Credit: - boundary of the park = 173 m  (The length of the boundary of the park = some of all sides = 5+4+3.7 +4.6 = 17.3 cm  SINCE Given that 1 cm = 10 m  So boundary of the park = 173 m)  No Credit: - Any other answers or wrong calculation. |

Q.5:- If the rate of fencing of park is Rs.18 per meter, the find the cost of fencing of the park.

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | CONNECTION |
| Overarching Idea | QUANTITYCHANGE AND RELATION |
| Context | SCIENTIFIC |
| Item format | MCQ |
| Cognitive Process | INTERPRET AND EVALUATE |
| Proficiency Level | Proficiency Level 2 |

# Credit Pattern:

|  |
| --- |
| Q. 5:- Full Credit: - The Cost of fencing= Rs 3114/-  (The cost of fencing of the park = 173x18 = 3114/-)  No Credit: - Any other answers or wrong calculation. |

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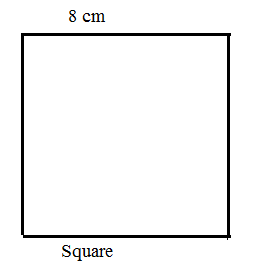
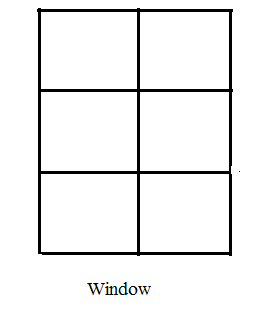
Name of the Vidyalaya: K.V NEW CANTT , ALLAHABAD

KVS Region: VARANASI

|  |  |  |
| --- | --- | --- |
| Domain:  Mathematical Literacy | Theme (Construction of square) | Class(es):VIII  Expected time: 20 MIN Total Credit: 10 |
| Description of Item:   |  |  | | --- | --- | | yes | Text | | yes | Image | |  | Table | |  | Graph | |  | Map | |  | Poem | | Learning Outcome:  (As per NCERT)UNDERSTANDING , PROPERTIES OF SQUARE AND FINDING AREA AND PERIMETER . | |

On a very fine day of monsoon Ramesh felt a flow of rainy air in his room. After inspecting he found out that one of the window panes in his room was broken. So to renovate the broken part of the window, he thought to take the measurement.

After taking measurement he found that all the sides of the window panes are equal and a quadrilateral having all the four sides equal is known as square. Now he needs to draw that square shape on the glass to cut it neatly. But before drawing on the glass it would be wiser to draw on a paper and practice it. Now help him to construct (draw) square if its side is 8 cm each.



Q. 1:- Which of the following statements are true for a square.

(i) It has all its sides of equal length.

(ii) Its diagonals are equal to its sides.

(iii) Its diagonals bisect each other at right angles.

(iv) Its opposite angles are not equal.

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | CONNECTION |
| Overarching Idea | SPACES AND SHAPES |
| Context | SCIENTIFIC |
| Item format | Simple MCQ |
| Cognitive Process | INTERPRATE |
| Proficiency Level | Proficiency Level 1 |

Credit Pattern:

|  |
| --- |
| Q.1:- Full Credit: - (i) True  (ii) False  (iii) True  (iv) False  Partial credit: - 1 mark for any two or three correct answers  No Credit: - Any one part or wrong answer |

Q. 2:- The measurement of each angle of square is   
A) 600 B) 900  
C) 1200 D) 1800

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | QUANTITY |
| Overarching Idea | SPACE AND SHAPE |
| Context | SCIENTIFIC |
| Item format | Simple MCQ |
| Cognitive Process | INTERPRATE |
| Proficiency Level | 1 |

Credit Pattern:

|  |
| --- |
| Q. 2:- Full Credit: - Option B  No Credit: - Any other answer |

Q. 3:- The diagonals of a square are  
A) Equal B) Not equal  
C) Twice of its side D) None of these

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | CONNECTION |
| Overarching Idea | SPACE AND SHAPE |
| Context | SCIENTIFIC |
| Item format | Simple MCQ |
| Cognitive Process | INTERPRATE |
| Proficiency Level | Proficiency Level 1 |

Credit Pattern:

|  |
| --- |
| Q. 3:- Full Credit: - Option A  No Credit: - Any other option |

Q. 4:- Find the area of window panes.

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | CONNECTION |
| Overarching Idea | CHANGE AND RELATION |
| Context | SCIENTIFIC |
| Item format | CLOSE ENDED |
| Cognitive Process | EVALUATE |
| Proficiency Level | Proficiency Level 2 |

Credit Pattern:

|  |
| --- |
| Q. 4:- Full Credit: - Area of square = side x side = 8 cm x8 cm = 64 cm2  Partial credit : correct formula but wrong calculation  No Credit: - Any other answers. |

Q.5:- If the cost of window panes is Rs.16 per square cm, then what is the cost of one window panes?

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | REPRODUCTION/ CONNECTION |
| Overarching Idea | CHANGE AND RELATIONSHIP |
| Context | SCIENTIFIC |
| Item format | CLOSE ENDED |
| Cognitive Process | EVALUATION |
| Proficiency Level | Proficiency Level 3 |

Credit Pattern:

|  |
| --- |
| Q. 5:- Full Credit: - Cost of window pane = Rs. 1024  (Cost of window pane = Area x Rate = 64x 16 = 1024)  No Credit: - Any other answers or wrong calculation. |

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**Creative and Critical Thinking (CCT) Practice Assessment of Mathematical literacy**

**Name of the Vidyalaya: K.V. OLD CANTT. , ALLAHABAD**

**KVS Region: VARANASI**

**Theme 1**

|  |  |  |
| --- | --- | --- |
| Domain:  Mathematical Literacy | Theme:Golden Quadrilateral | Class(es):VIII  expected time: 15min.  Total Credit:2\*5=10 |
| Description of Item:   |  |  | | --- | --- | | YES | Text | | YES | Image | |  | Table | |  | Graph | |  | Map | |  | Poem | | Learning Outcome: understanding and calculation of Perimeter of Quadrilateral. | |

India is one of the largest countries in the world and the second most populated country in the world after China. Golden Quadrilateral is the largest highway project completed in India. It is also the fifth longest highway project in the world. The project was launched by NDA Government led by the Prime Minister Shri Atal Bihari Vajpayee in 2001. Shri Atal Bihari Vajpayee once said, “Our roads don’t have a few potholes. Our potholes have a few roads.”

Section 4=1419 km

Section 3=1290 km

**Delhi**

**Chennai**

**Kolkata**

**Golden Quadrilateral Highway**

Upon completion, it connected four major metro cities of India i.e. Delhi, Mumbai, Chennai and Kolkata. The Golden Quadrilateral project passes through 13 states of India. Andhra Pradesh shares the highest length of road 1014 km and Delhi has the lowest 25 km. Project was officially started in2001.Project was divided into four section. Each section is approximately a side of Quadrilaterl. Metro cities Delhi, Kolkata, Chennai and Mumbai are vertices of this Golden Quadrilateral.

A tourist started his journey from a Metro city on Sunday to visit all four Metro cities by car .He drives his car at uniform speed 60km/hr .He will drive only 8 hours per day.On arriving the next Metro city, he will take rest on that particular day.Next day he will start for next Metro city.

Q.1. What will be Total length of Golden Quadrilateral Project

|  |  |
| --- | --- |
| **FRAMEWORK** | **CHARACTERISTICS** |
| Competency Cluster | Connections |
| Overarching Idea | Quantity |
| Context | Public |
| Item format | Closed Constructed Response |
| Cognitive Process | Evaluate |
| Proficiency Level | Proficiency Level 1 |

Credit Pattern:

Full Credit: If response is 5846 km.

Partial Credit: If response is 5846.

Nil Credit: Other response.

Description of Answer Key and Credits:

|  |
| --- |
| 1453+1684+1290+1419=5846 km |

Q.2. In which state does he drive the car for the longest time.

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | Reflection |
| Overarching Idea | Quantity |
| Context | Public |
| Item format | Close Constructed Response |
| Cognitive Process | Interpret |
| Proficiency Level | Proficiency Level 3 |

Credit Pattern:

Full Credit: If response is Andhra Pradesh.

Partial Credit: NA.

Nil Credit: Other response.

Description of Answer Key and Credits:

|  |
| --- |
| Andhra Pradesh because 1014km highway in Andhra Pradesh |

Q.3. From which Metro city should he start journey to reach all Metro cities taking minimum days.

a) Dehli b) Kolkata c) Chennai d) All

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | Connection |
| Overarching Idea | Change and Relationship |
| Context | Public |
| Item format | Complex MCQ |
| Cognitive Process | Interpret |
| Proficiency Level | Proficiency Level 4 |

Credit Pattern:

Full Credit: If response is D.

Partial Credit: Other response.

Nil Credit: NA.

Description of Answer Key and Credits:

|  |
| --- |
| Delhi- Kolkata-Chennai-Mumbai = 11 days  Delhi-Mumbai-Chennai-Kolkata = 10 days  Kolkata-Chennai-Mumbai- Delhi = 10 days  Kolkata-Delhi-Mumbai-Chennai = 10 days  Chennai-Mumbai- Delhi- Kolkata = 10 days  Chennai -Kolkata-Delhi-Mumbai = 11 days  Mumbai- Delhi- Kolkata -Chennai = 11 days  Mumbai -Chennai -Kolkata-Delhi = 11 days |

Q.4. Minimum how many Kilo meter will he drive to reach all metro cities.

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | Connection |
| Overarching Idea | Change and relationship |
| Context | Public |
| Item format | Closed constructed response |
| Cognitive Process | Interpret |
| Proficiency Level | Proficiency Level 3 |

Credit Pattern:

Full Credit: if response is 4162 km

Partial Credit:4162

Nil Credit:other response

Description of Answer Key and Credits:

|  |
| --- |
| 1290+1419+1453=4162km |

Q.5. If he starts journey from Delhi, which day will he arrive to Kolkata.

A) Monday B) Tuesday C) Thursday D) Friday

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | Connection |
| Overarching Idea | Change and relation |
| Context | Public |
| Item format | Complex MCQ |
| Cognitive Process | Interpret |
| Proficiency Level | Proficiency Level 4 |

Credit Pattern:

Full Credit: if response is Tuesday

Partial Credit: na

Nil Credit:other response

Description of Answer Key and Credits:

|  |
| --- |
| Delhi to kolkata – Wednesday  Delhi to Kolkata via Mumbai ,Chennai –Tuesday |

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**Creative and Critical Thinking (CCT) Practice Assessment of Mathematical literacy**

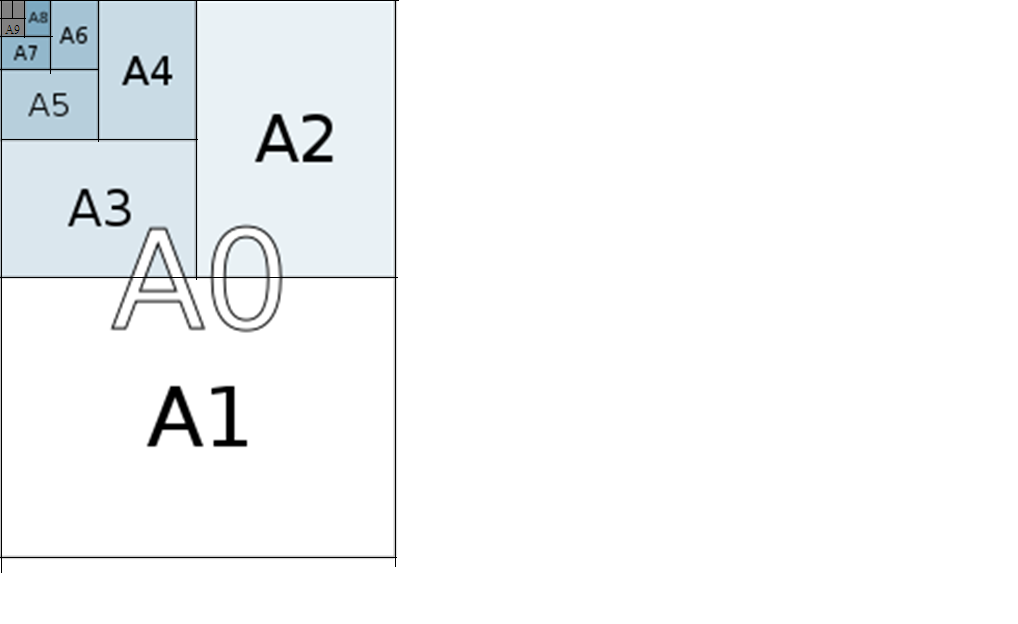
**Name of the Vidyalaya: K.V. OLD CANTT. , ALLAHABAD**

**KVS Region: VARANASI**

**Theme 2**

|  |  |  |
| --- | --- | --- |
| Domain:  Mathematical Literacy | Theme: Size of paper | Class(es):VIII  expected time: 15min.  Total Credit:2\*5=10 |
| Description of Item:   |  |  | | --- | --- | | YES | Text | | YES | Image | |  | Table | |  | Graph | |  | Map | |  | Poem | | Learning Outcome: understanding and calculation of side of Quadrilateral. | |

**A10**



A

B

D

C

AS, We all have heard about A4 size paper. A0 is the largest size of it; each size after that becomes progressively smaller. Specifically, each subsequent size is simply the result of cutting the previous size in half, so the proportions of length to width are preserved. A10 is the smallest size of A-series paper. The measurement of A4 size paper is 297mm X 210mm.

Here ABCD is rectangle which represent A0 size paper. AB=x BC=y, AC=z, = 1.414

Q.1 How many A4 size paper can be cut from A0 size paper. Show the calculation.

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | Connection |
| Overarching Idea | Quantity |
| Context | Public |
| Item format | Closed constructed response |
| Cognitive Process | Evaluate |
| Proficiency Level | Proficiency Level 2 |

Credit Pattern:

Full Credit: if response is 16

Partial Credit:na

Nil Credit:other response

Description of Answer Key and Credits:

|  |
| --- |
| A0=2 A1=2\*2 A2=2\*2\*2 A3= 2\*2\*2\*2 A4 =16 A4 |

Q.2 Approx. ratio of length to width of A2 size paper is

A) 1: B) : C) : 1 D)None

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | Connection |
| Overarching Idea | Quantity |
| Context | Public |
| Item format | Mcq |
| Cognitive Process | Evaluate |
| Proficiency Level | Proficiency Level 2 |

Credit Pattern:

Full Credit:if response is C

Partial Credit:na

Nil Credit:other response

Description of Answer Key and Credits:

|  |
| --- |
| 297/210 =1.41428…= (approx..)  Option C is answer |

Q.3 Approx value of y will be

a) 1184mm b) 1185mm c)1189mm d)1190mm

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | Connection |
| Overarching Idea | Quantity |
| Context | Public |
| Item format | Mcq |
| Cognitive Process | Interpret |
| Proficiency Level | Proficiency Level 3 |

Credit Pattern:

Full Credit: C

Partial Credit:D

Nil Credit:other response

Description of Answer Key and Credits:

|  |
| --- |
| Length of A0 = 48 length of A4 =48 \*297 =1188mm  Option C is answer |

Q.4 Value of x:y:z is

A) 1:2:3 B) : : C) : : D) 1: :3

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | Reproduction |
| Overarching Idea | Change and relationship |
| Context | Public |
| Item format | Mcq |
| Cognitive Process | Evaluate |
| Proficiency Level | Proficiency Level 4 |

Credit Pattern:

Full Credit: B

Partial Credit:na

Nil Credit:other response

Description of Answer

|  |
| --- |
| Ratio of width to length = 1:  Now x:y:z = option B |

Q.5 If A10 represents 1GB and A0 represents 1TB, then how many GB in 1TB.

a) 1000 b) 1020 c)1024 d)1080

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | Connection |
| Overarching Idea | quantity |
| Context | Public |
| Item format | Mcq |
| Cognitive Process | Interpret |
| Proficiency Level | Proficiency Level 2 |

Credit Pattern:

Full Credit: if response is option c

Partial Credit:na

Nil Credit:other option

Description of Answer Key and Credits:

|  |
| --- |
| 1 A0=2 A1 = 2\*2 A2= 2\*2\*2 =A3= 2\*2\*2\*2 A4= 2\*2\*2\*2\*2 A5= 2\*2\*2\*2\*2\*2 A6= 2\*2\*2\*2\*2\*2\*2 A7=  2\*2\*2\*2\*2\*2\*2\*2 A8= 2\*2\*2\*2\*2\*2\*2\*2\*2 A9= 2\*2\*2\*2\*2\*2\*2\*2\*2\*2 A10= 1024 A10  1TB=1024GB |

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KVS Region: VARANASI

|  |  |  |
| --- | --- | --- |
| Domain:  Mathematical Literacy | Theme; Math Garden | Class(es):VIII  Expected time: 20 MIN  Total Credit: 10 |
| Description of Item:   |  |  | | --- | --- | | YES | Text | | NO | Image | |  | Table | |  | Graph | |  | Map | |  | Poem | | Learning Outcome: UNDERSTANDING QUADRILATERALS | |

Sam, Tim, Elle and Vinni participated in Mathematical Garden competition. In this they have to make a garden with the application of Mathematics. They asked their teacher for help. Their teacher suggested to form a garden of quadrilateral shape. Teacher asked them to stand at the four corners(vertex) such that they form a quadrilateral. The order for them to stand has been decided as Sam, Elle, Tim and Vinni. Teacher had given the distance between Sam and Tim as 16m whereas between Elle and Vinni as 30malso the distance between consecutive positions are equal. Now, the teacher had asked the students to complete the garden in 10 days.

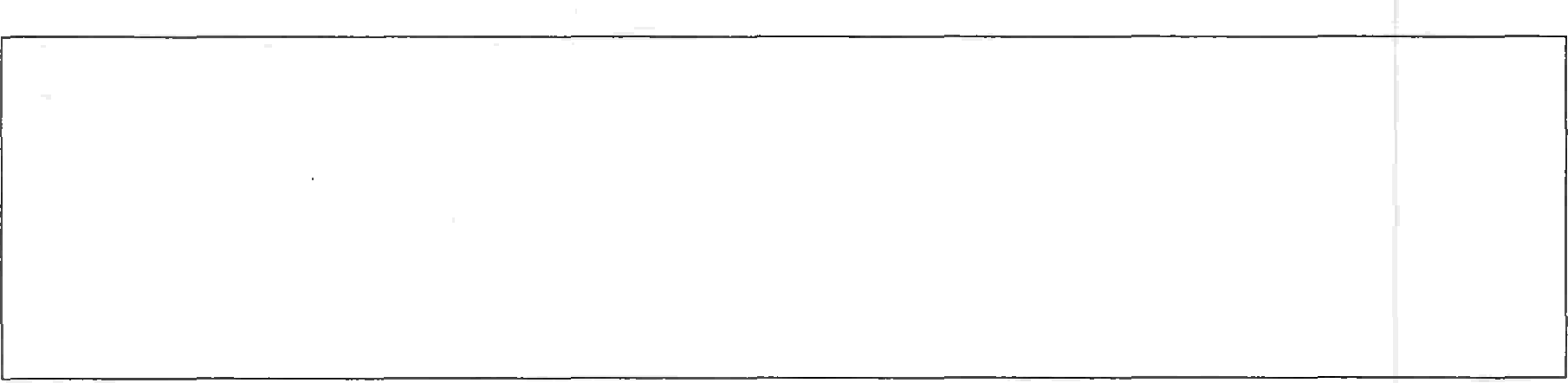
1. Which type of quadrilateral is possible in the given condition?

1. Trapezium (b) Kite

(c) Rectangle (d) Rhombus

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | CONNECTION |
| Overarching Idea | SPACE AND SHAPE |
| Context | SCIENTIFIC |
| Item format | Simple MCQ |
| Cognitive Process | INTERPRETATION |
| Proficiency Level | Proficiency Level 1 |

Credit Pattern:



Explain expected answer and the respective credits

1. Full credit – Option D

No credit – Any other option

2. For the quadrilateral shape garden the distance between Sam, Tim ,Elle and Vinni. represents which part of quadrilateral?

(a) Sides (b) Angles

( c) Diagonals (d) Vertex

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | CONNECTION |
| Overarching Idea | SHAPE AND SIZE |
| Context | SCIENTIFIC |
| Item format | Simple MCQ |
| Cognitive Process | INTERPRETATION |
| Proficiency Level | Proficiency Level 1 |

Credit Pattern:

|  |
| --- |
| 2. Full credit – Option a AND c  Partial credit- option a or c  No credit – Any other option |

3. The students thought of planting rose plants at the distance between Sam-Tim and

Elle- Vinni .A Ficus plant at the centre of these. Calculate the distance of Ficus plant from Elle?

(a) 15 m (b) 13m

(c ) 11m (d) 12m

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | CONNECTION |
| Overarching Idea | SHAPE AND SIZE |
| Context | SCIENTIFIC |
| Item format | Simple MCQ |
| Cognitive Process | EVALUATION |
| Proficiency Level | Proficiency Level 1 |

Credit Pattern:

|  |
| --- |
| 3. Full credit – Option A  No credit – Any other option |

4. What will be the distance between Tim and Elle?

(a) 1200 cm (b) 1300 cm

(c ) 1500 cm (d) 1700 cm

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | CONNECTION |
| Overarching Idea | SPACE AND SHAPE |
| Context | SCIENTIFIC |
| Item format | Simple MCQ |
| Cognitive Process | EVALUATION |
| Proficiency Level | Proficiency Level 1 |

Credit Pattern:

|  |
| --- |
| 4. Full credit – Option D  No credit – Any other option |

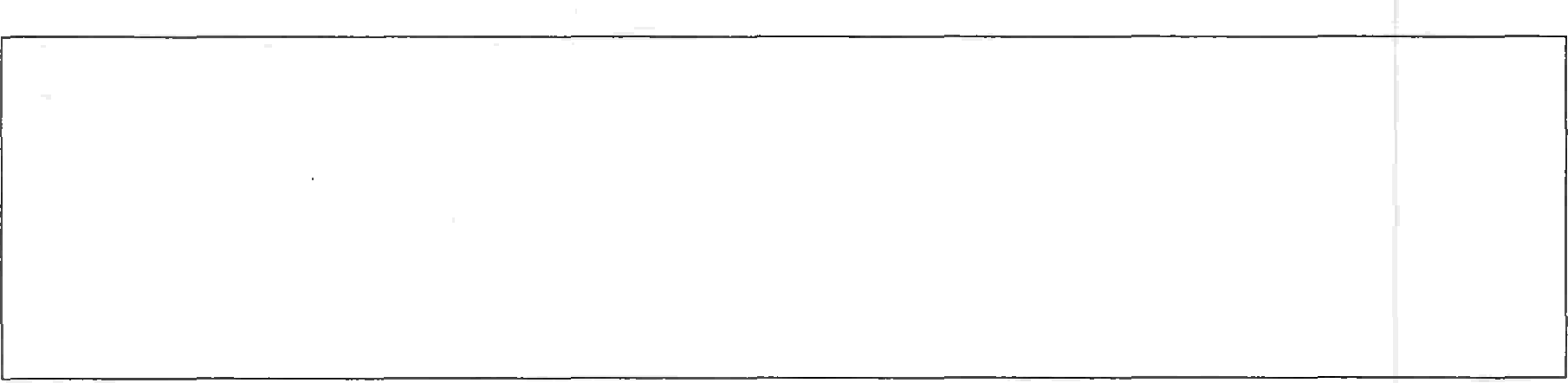
5. Give the measurement of the angle formed at the ficus plant from Sam and Elle ?

(a) 1200  (b) 900

(c ) 600.  (d) 1800

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | CONNECTION |
| Overarching Idea | SHAPE AND SIZE |
| Context | SCIENTIFIC |
| Item format | SimpleMCQ |
| Cognitive Process | INTERPRETATION |
| Proficiency Level | Proficiency Level 1 |

Credit Pattern:



5. Full credit – Option b

No credit – Any other option

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**Creative and Critical Thinking (CCT) Practice Assessment of Mathematical literacy**

**Name of the Vidyalaya: K.V. OLD CANTT. , ALLAHABAD**

**KVS Region: VARANASI**

**Theme 4**

|  |  |  |
| --- | --- | --- |
| Domain:  Mathematical Literacy | Theme:Area Comparsion | Class(es):VIII  expected time: 15min.  Total Credit:2\*5=10 |
| Description of Item:   |  |  | | --- | --- | | YES | Text | | YES | Image | |  | Table | |  | Graph | |  | Map | |  | Poem | | Learning Outcome: understanding and calculation of Area and perimeter of Quadrilateral. | |

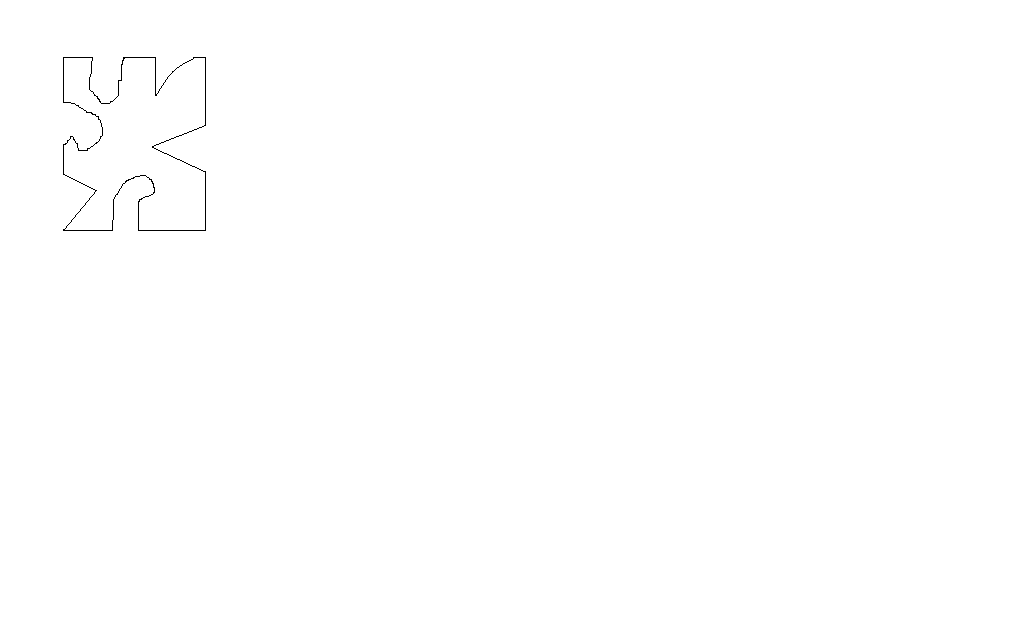
**Look at following pictures**

**6 cm**Section 1=1453 km

**6 cm**Section 2=1684 km



**BMumbai**



**6 cm**

**6 cm**

**C**

**6 cm**

**6 cm**

**A**

**6 cm**

**6 cm**

**D**

Q1. Which has largest Area and give reasons.

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | Connection |
| Overarching Idea | Change and relationship |
| Context | Scientific |
| Item format | Closed constructive response |
| Cognitive Process | interpret |
| Proficiency Level | Proficiency Level 2 |

Credit Pattern:

Full Credit: if response is picture A

Partial Credit:na

Nil Credit: other response

Description of Answer Key and Credits:

|  |
| --- |
| All picture will fit into picture A |

Q2. What is perimeter of picture B

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | Reproduction |
| Overarching Idea | Evaluate |
| Context | Scientific |
| Item format | Closed constructive response |
| Cognitive Process | Evaluate |
| Proficiency Level | Proficiency Level 2-3 |

Credit Pattern:

Full Credit: if response is 24 unit

Partial Credit:na

Nil Credit: other response

Description of Answer Key and Credits:

|  |
| --- |
| Total length of horizontal parts =6, total length of vertical parts =6,  Perimeter = 6+6+6+6=24 unit |

Q3. Discuss how will you find Area of picture C.

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | Connection |
| Overarching Idea | Change and relationship |
| Context | Scientific |
| Item format | Open constructive response |
| Cognitive Process | Interpret |
| Proficiency Level | Proficiency Level 4-6 |

Credit Pattern:

Full Credit: if response is in the direction of right concept

Partial Credit: If response is approximately in the direction of right concept

Nil Credit: Other response

Description of Answer Key and Credits:

|  |
| --- |
| 1. Draw picture on the graph paper and count the number of square which lie partially and fully in the picture. 2. Draw the many pieces of same picture and stacked up. Fill the water and measure the volume of water and then divide by height of 3D object. 3. Other response to find area which is correct. |

Q4. Discuss how you will find Perimeter of picture C.

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | Reproduction |
| Overarching Idea | Change and relationship |
| Context | Scientific |
| Item format | Open constructive response |
| Cognitive Process | Interpret |
| Proficiency Level | Proficiency Level 4-6 |

Credit Pattern:

Full Credit:if response is in the direction of right concept

Partial Credit:If response is approximately in the direction of right concept

Nil Credit: other response

Description of Answer Key and Credits:

|  |
| --- |
| Measure perimeter of picture using thread.  Cut into many parts and arrange along to a line then measure. |

Q5. Approx perimeter of picture D will be.

1. 20 b) 22 c) 23 d) 25

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | Connection |
| Overarching Idea | Quantity |
| Context | Scientific |
| Item format | MCQ |
| Cognitive Process | Interpret |
| Proficiency Level | Proficiency Level 2 |

Credit Pattern:

Full Credit: option d

Partial Credit:na

Nil Credit:other response

Description of Answer Key and Credits:

|  |
| --- |
| Sum 2 sides of triangle will be greater than third side |

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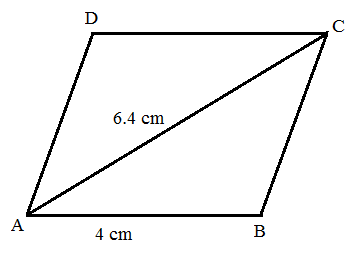
Phone No.: 8800767323

Name of the Vidyalaya: K .V. NEW CANTT , ALLAHABAD

KVS Region: VARANASI

|  |  |  |
| --- | --- | --- |
| Domain:  Mathematical Literacy | Theme(Construction of rhombus, given a side and a diagonal): | Class(es):VIII  Expected time: 5 minutes  Total Credit: 2\*5=10 |
| Description of Item:   |  |  | | --- | --- | | Yes | Text | | Yes | Image | |  | Table | |  | Graph | |  | Map | |  | Poem | | Learning Outcome:  Understanding and calculation of Area of Rhombus. | |

Shyam is hard working child. He is studying hard because tomorrow he has a mathematics test but he was stuck in a construction problem, where the problem says that to construct a rhombus ABCD in which a side AB = 4 cm and diagonal AC = 6.4 cm. So he asks his father to help him with the problem. His father says since rhombus has all its sides are equal and the diagonals bisects each other at 900. It is easy to construct if 5 independent elements are given as a side and diagonal,so construct a rhombus with a side and a diagonal. Shyam construct rhombus by given information with the help of Geometrical instruments on paper.



Q. 1:- A Parallelogram, having a pair of adjacent sides is equal then it becomes a  
A) Square B) Kite  
C) Rectangle D) Rhombus

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | REPRODUCTION |
| Overarching Idea | SPACE AND SHAPE |
| Context | SCIENTIFIC |
| Item format | COMPLEX MCQ |
| Cognitive Process | INTERPRET |
| Proficiency Level | Proficiency Level 1 |

Credit Pattern:

|  |
| --- |
| Q.1:- Full Credit: - Option D  Partial Credit: option A  No Credit: - Any other option |

Q. 2:- Fill in the blanks   
(i) A rhombus has all sides of ………………… length.

(ii) The diagonals of a rhombus …………… each other at …………… angles.

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | CONNECTION |
| Overarching Idea | QUANTITY |
| Context | SCIENTIFIC |
| Item format | Simple MCQ |
| Cognitive Process | INTERPRET |
| Proficiency Level | Proficiency Level 1 |

Credit Pattern:

|  |
| --- |
| Q. 2:- Full Credit: - (i) Equal  (ii) Bisect and right  Partial credit: - 1 mark for any one correct response.  No Credit: - Incorrect / vague answers |

Q. 3:- The opposite angles of a rhombus are

A) Equal B) half of another angle  
C) Not Equal D) None of these

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | CONNECTION |
| Overarching Idea | SPACE AND SHAPE |
| Context | SCIENTIFIC |
| Item format | Simple MCQ |
| Cognitive Process | INTERPRET |
| Proficiency Level | Proficiency Level 2 |

Credit Pattern

|  |
| --- |
| Q. 3:- Full Credit: - Option A  No Credit: - Any other option |

Q. 4:- Find the perimeter of given rhombus.

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | CONNECTION |
| Overarching Idea | CHANGE AND RELATIONSHIP |
| Context | SCIENTIFIC |
| Item format | CLOSE ENDED |
| Cognitive Process | EVALUATION |
| Proficiency Level | Proficiency Level 1 |

Credit Pattern:

|  |
| --- |
| Q. 4:- Full Credit: - Perimeter of the rhombus = 4 x side = 4x4 cm = 16 cm  Partial credit : only formula but wrong calculation  No Credit: - Any other answers or wrong calculation |

Q.5:- If the diagonals of a rhombus are 12 cm and 16 cm, find the length of side.

|  |  |
| --- | --- |
| FRAMEWORK | CHARACTERISTICS |
| Competency Cluster | CONNECTION |
| Overarching Idea | CHANGE AND RELATIONSHIP |
| Context | SCIENTIFIC |
| Item format | CLOSE ENDED |
| Cognitive Process | EVALUATE |
| Proficiency Level | Proficiency Level 3 |

Credit Pattern:

|  |
| --- |
| Q. 5:- Full Credit: - Side2 = **2 + 2 =** (6)2 + (8)2= 36+ 64 = 100,Side = 10 cm  Partial credit : only formula(Pythagoras theorem) but wrong calculation  No Credit: - Any other answers or wrong calculation |

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