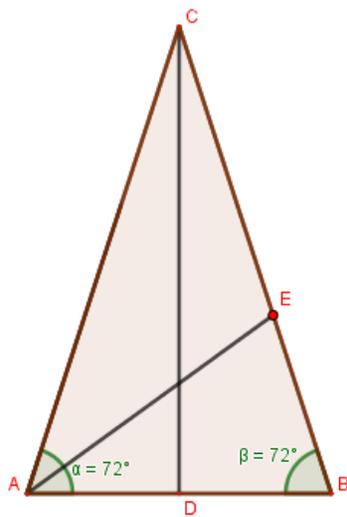


Learning Outcomes: Properties of triangles and its application, Knowledge of golden triangle and its angles

TEST Item 1:
Golden Triangle

A golden triangle is an isosceles triangle in which the ratio of the longer side to the smaller side is 1.618(approximately)



ΔABC is a golden triangle. $AB = 4\text{cm}$. CD is a median of the triangle.

Question 1.1

Length of AD is

Question 1.2

Length of AC is approximately

A. 8.24 cm

B. 7.32 cm

C. 6.47 cm

D. 5.21 cm

Question 1.3

What are the values of the three angles of a golden triangle?

Question 1.4

Is ΔADC a right triangle? Give reason.

Question 1.5

AE is bisector of angle BAC .

Is ΔABE a golden triangle? Give reason.

Question intent (Test Item - 1)

FRAMEWORK	CHARACTERISTICS
Competency Cluster	<i>Knowledge, understanding of concept and application</i>
Overarching Idea	<i>Different type of triangles and their properties</i>
Context	<i>Median, altitude of an isosceles triangle and properties</i>
Item format	(i) Short response (ii) simple MCQ (iii) Open (iv) closed constructed response
Cognitive Process	<i>Interpreting, Problem solving</i>
Proficiency Level	5

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Description of Answer keys and credit: (Test Item - 1)

(i)Credit score:1

Full credit :If answer is 2

No credit for other responses.

(ii)credit score :2

Full credit :For the correct answer (c) 6.47 cm

Partial credit :1 for the response AC/ AB = 1.618

(III)Credit Score :2

full credit for response 72degree,72 degree and 36 degree

No credit for other responses

(iv)Credit score :2

Full credit for response Yes and correct reason that in an isosceles triangle median and altitude are same.

Partial credit 1, if response is yes but reason is not correct or missing.

No credit for other responses

(v) Credit score :3

Full credit for response Yes and an three angles of Angle BAE are found correctly and giving reason that angles are

72degree,72 degree and 36 degree

Partial credit 1 if response is yes but reason is not correct or missing.

No credit for other responses

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Name of the Vidyalaya: K.V. No. 2 JLA , Bareilly

KVS Region: LUCKNOW

Domain: Mathematics literacy

Topic/Chapter: The Triangle and its properties

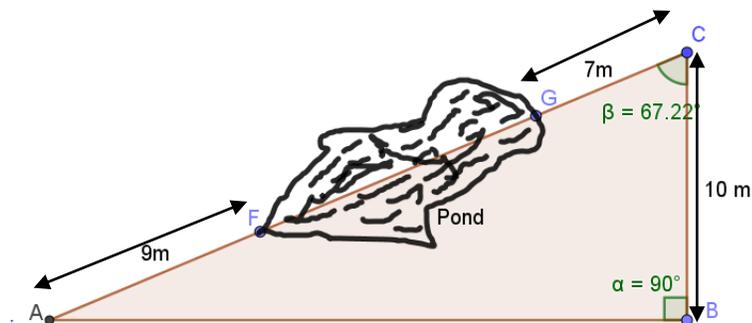
Class: VII

Expected Time: 6 min

Total Credit: 6

Learning Outcomes: Understanding of angle sum property, Pythagoras theorem and its application in real life problems

TEST Item: 2 Length of a pond



Mr. Pillai has a triangular field as shown in the picture. $AB+BC = 34\text{m}$

On side AC there is a pond.

Question 2.1

What is the measure of angle A?

- (A) 22.78 degree
- (B) 32.78 degree
- (C) 40 degree
- (D) 42.5 degree

Question 2.2

How can he find the length of the pond without going into the water.

Question 2.3

What is the length of the side AC.

- (A) 24m
- (B) 30 m
- (C) 26m
- (D) 20m

Question 2.4

What is the length of the pond.

- A) 24m
- (B) 10 m
- (C) 26m
- (D) 20m

Question intent (Test Item - 2)

FRAMEWORK	CHARACTERISTICS
Competency Cluster	<i>Interpreting, application ,problem solving</i>
Overarching Idea	<i>Application of triangle and its properties</i>
Context	<i>scientific</i>
Item format	Simple MCQ Open constructed response item Complex MCQ Simple MCQ
Cognitive Process	<i>Interpreting, Application, Problem solving</i>
Proficiency Level	3

Description of Answer keys and credit: (Test Item - 2)

<p>(i)Credit score:1 Full credit: For answer (A) No credit : for other responses.</p> <p>(ii)credit score :2 Full credit : By using Pythagoras Theorem,first finding AC and then finding length of the pond or for any other similar correct response. No credit :If the reponse is missing or incorrect</p> <p>(III)Credit Score : 2 Full credit: For answer (C) No credit : For other responses.</p> <p>(iv)Credit score :1 Full credit: For answer (B) No credit : For other responses</p> <p>Name of the Teacher/Item Writer: S.N. TRIPATHI Designation: PGT (MATHS.) Email: sntripathi59@gmail.com Phone No.: 9411205496 Name of the Vidyalaya: K.V. No. 2 JLA , Bareilly KVS Region: LUCKNOW</p>
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Domain: Mathematics literacy

Topic/Chapter: The Triangle and its properties

Class: VII

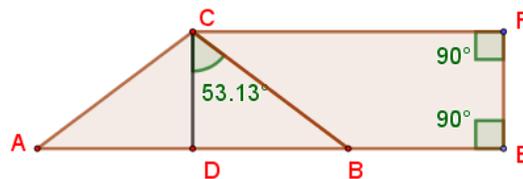
Expected Time: 6min

Total Credit: 6

Learning Outcomes: Using properties of a triangles, applying Pythagoras theorem in real life situations

TEST Item: 3

Farmer's Field



$$AB = 160\text{m}, CD = 60\text{m}, BE = 160\text{m}$$

Ram Naresh and Suresh, the two farmers of a village, have their fields adjacent to each other as shown in the figure. The field ABC belongs to Ram Naresh while field BEFC belongs to Suresh. D is midpoint of AB and ABC is an isosceles triangle. For fencing of their fields they want the total length of the boundaries of their fields barring the common boundary BC which does not require fencing.

Question 3.1

What is angle CDB?

- (A) 42.51 degree
- (B) 49 degree
- (C) 35 degree
- (D) 36.87 degree

Question 3.2

What is angle CBE?

- (A) 120 degree
- (B) 137 degree
- (C) 143.13 degree
- (D) 150.87 degree

Question 3.3

What is the length of the boundary of the field belonging to Ram Naresh(leaving common boundary)?

Question 3.4

What is the length of the boundary of the field belonging to Suresh(leaving common boundary)?

Question intent (Test Item - 3)

FRAMEWORK	CHARACTERISTICS
Competency Cluster	<i>Interpreting, application, problem solving</i>
Overarching Idea	<i>Application of triangle and its properties</i>
Context	<i>scientific</i>
Item format	Short MCQ Short MCQ Closed constructed response item Closed constructed response item
Cognitive Process	<i>Interpreting, Problem solving</i>
Proficiency Level	3

Description of Answer keys and credit (Test Item - 3)

(i)Credit score:1

Full credit: For answer (D)

No credit: For other responses.

(ii)credit score :1

Full credit : For answer (C)

No credit : For other responses

(III)Credit Score : 2

Full credit: For finding correct answer 360m,using Pythagoras theorem

For finding AC and adding all the sides of the field

Partial credit: 1 If Pythagoras theorem is used correctly but calculation is not correct.

No credit : For wrong response or if response is missing,

(iv)Credit score :2

Full credit: For finding correct answer 360m,using Pythagoras theorem

For finding AC and adding all the sides of the field

Partial credit: 1 If Pythagoras theorem is used correctly but calculation is not correct.

No credit : For wrong response or if response is missing

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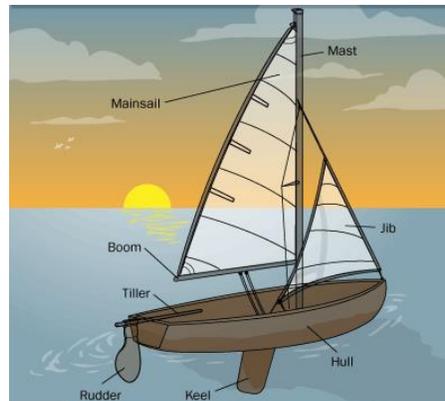
Phone No.: 9411205496

Name of the Vidyalaya: K.V. No. 2 JLA , Bareilly

KVS Region: LUCKNOW

Learning Outcomes: Understanding and applying concept of perimeter of a triangle and Pythagoras theorem

TEST Item: 4
Sail Boat



In the picture there is a sail boat in which both main sail and jib are in the form of right triangles. A monkey walks horizontally on the boom from the corner and then climbs vertically up the mast of the sail boat and reaches the top. The monkey covers a total distance of 17ft (walking horizontally and vertically). The vertical length of the mast is 12ft. The two perpendicular sides of the jib are 8ft and 6ft.

Question 4.1

What is the horizontal distance moved by the monkey?

Question 4.2

What is the minimum distance from the starting point of the boom to the top of the mast?

Question 4.3

The length of the third side of the jib is

(A) 10m

(B) 8m

(C) 6m

(D) 12m

Question 4.4

The perimeter of the main sail is

(A) 15m

(B) 30m

(C) 35m

(D) 25m

Question intent (Test Item - 4)

FRAMEWORK	CHARACTERISTICS
Competency Cluster	<i>Interpreting, application, problem solving</i>
Overarching Idea	<i>Application of triangle and its properties</i>
Context	<i>scientific</i>
Item format	<ul style="list-style-type: none"> a. Short response item b. Closed constructed response item c. Complex MCQ d. Simple MCQ
Cognitive Process	<i>Interpreting, Problem solving</i>
Proficiency Level	2

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Description of Answer keys and credit: (Test Item - 4)

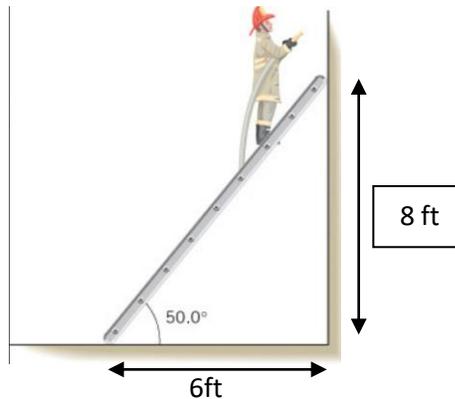
<p>(i) Credit score:1 Full credit : for answer 5ft No credit for other responses.</p> <p>(ii) Credit score :2 Full credit: For the correct answer 13ft using Pythagoras theorem properly Partial credit : 1 if Pythagoras theorem is applied correctly but calculation is wrong Nil credit: for any other response or response is missing.</p> <p>(iii) Credit Score :2 full credit for correct response A No credit for other responses</p> <p>(iv) Credit score :1 Full credit for response (B) No credit for other responses</p> <p>Name of the Teacher/Item Writer: S.N. TRIPATHI Designation: PGT (MATHS.) Email: sntripathi59@gmail.com Phone No.: 9411205496 Name of the Vidyalaya: K.V. No. 2 JLA , Bareilly KVS Region: LUCKNOW</p>
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Expected Time: 10 min

Total Credit: 5

Learning Outcomes:
Understanding and application of properties of triangles and Pythagoras theorem

TEST Item: 5
Fire Fighter



A firefighter is a rescuer extensively trained in firefighting, primarily to extinguish hazardous fires that threaten life, property and environment as well as to rescue people and animals from dangerous situations. In the picture a firefighter is trying to extinguish fire in a building while climbing on a ladder.

Question 5.1

What is the angle between the wall and the ladder?

- (A) 40 degrees
- (B) 50 degrees
- (C) 60 degrees
- (D) 90 degrees

Question 5.2

What is the obtuse angle between the ladder and the ground?

- (A) 125 degrees
- (B) 120 degrees
- (C) 130 degrees
- (D) 150 degrees

Question 5.3

What is the length of the ladder?

- (A) 10m
- (B) 8m
- (C) 6m
- (D) 12m

Question 5.4

If the firefighter wants to reach a height little more than 8 ft, in which direction he should move the foot of the ladder?

Question intent (Test Item - 5)

FRAMEWORK	CHARACTERISTICS
Competency Cluster	<i>Interpreting, application, problem solving</i>
Overarching Idea	<i>Application of triangle and its properties</i>
Context	<i>scientific</i>
Item format	a. Simple MCQ b. Simple MCQ c. Complex MCQ d. Short Response
Cognitive Process	<i>Interpreting, Problem solving</i>
Proficiency Level	2

.....

Description of Answer keys and credit: (Test Item - 5)

(i) Credit score:1

Full credit : for correct response (A)

No credit for other responses.

(ii) Credit score :1

Full credit: For the correct response (C)

No credit for other responses.

(iii) Credit Score :2

full credit for correct response (A)

No credit for other responses

(iv) Credit score :1

Full credit for response “towards the wall” or any similar response

No credit for other responses

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