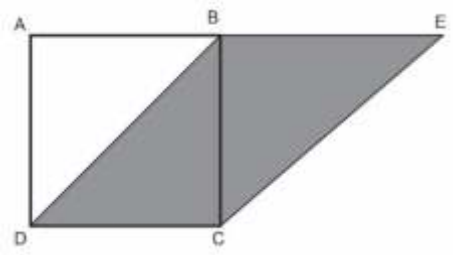
Curriculum Aligned Assessment Items
Mathematical Literacy
Class 9 – Chapter 9
Areas of Parallelograms and Triangles

In the figure given below, ABCD is a square of area 144 cm^2 andBECD is a parallelogram.



SAS21M09S0901

1 What is the length of CE?

A. 12 cm
B. 14.4 cm
C. $12\sqrt{2}$ cm
D. 24 cm

SAS21M09S0902

2 What is the measure of ∠DCE?

A. 45°
B. 90°
C. 120°
D. 135°

SAS21M09S0903

3 Shashi claims that all parallelograms between two parallel lines and the same base are congruent. Justify.

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SAS21M09S0904

4 The area of a triangle and a parallelogram are equal.
Which of the following statements is true for them?

A. The base length and the altitude of the triangle and the parallelogram are the same.
B. Both the triangle and the parallelogram lie between the same set of parallel lines and their bases are the same.
C. The base length and the corresponding altitude of the triangle are two times the base length and the corresponding altitude of the parallelogram.
D. Either the corresponding base length or the corresponding altitude of the triangle is the double of the parallelogram's base length or altitude.

SAS21M09S0905

5 Preeti wants to divide a scalene triangle into two triangles having equal areas. Suggest one way to do so.

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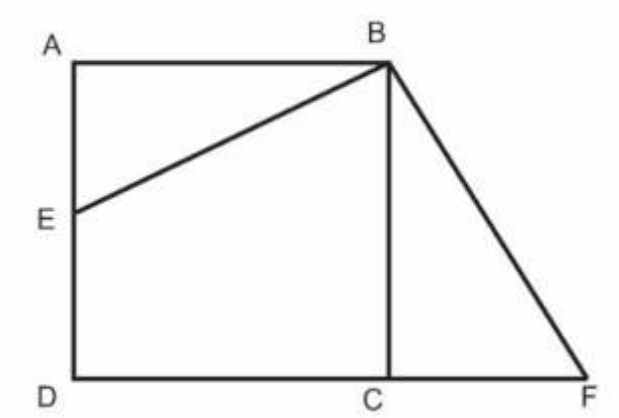
In the given figure, ABCD is a square with perimeter 8 cm. E is the mid-point of AD and AE = CF.



SAS21M09S0906

6 What is the measure of ∠EBF?

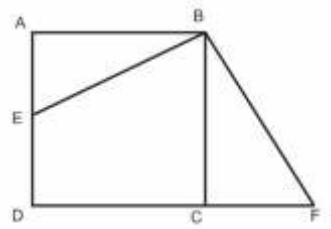
A. 60°
B. 75°
C. 90°
D. 135°

SAS21M09S0907

7 What is the area of ΔBCF?

A. $1\ cm^2$
B. $2\ cm^2$
C. $4\ cm^2$
D. $8\ cm^2$

In the figure given below, each small square represents an area of $1\ cm^2$.



SAS21M09S0908

8 What is the ratio between the area of the rectangle and the shaded region?

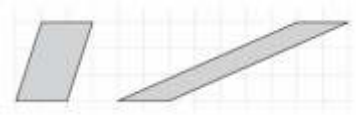
A. 1:1
B. 2:1
C. 3:1
D. 3:2

SAS21M09S0909

9 What is the area (in cm^2) of the trapezium in the given figure?

A. $6\ cm^2$
B. $8\ cm^2$
C. $9\ cm^2$
D. $12\ cm^2$

The two parallelograms on a unit square grid are shown below.



SAS21M09S0910

10 Compare the areas of the two parallelograms.

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Answers

Item Number	Question 1
Question Code	SAS21M09S0901
Grade & Chapter Name	Grade 9 | Areas of Parallelograms and Triangles
Concept | Sub-concept	Geometry | Parallelograms on the same Base and Between the same Parallels
Competency	Employ
Item Type	Multiple Choice Question
Full Credit (Full Score)	C. $12\sqrt{2}$ cm
No Credit (No Score)	Any other response or missing response

Item Number	Question 2
Question Code	SAS21M09S0902
Grade & Chapter Name	Grade 9 | Areas of Parallelograms and Triangles
Concept | Sub-concept	Geometry | Parallelograms on the same Base and Between the same Parallels
Competency	Employ
Item Type	Multiple Choice Question
Full Credit (Full Score)	D. 135°
No Credit (No Score)	Any other response or missing response

Item Number	Question 3
Question Code	SAS21M09S0903
Grade & Chapter Name	Grade 9 | Areas of Parallelograms and Triangles
Concept | Sub-concept	Geometry | Parallelograms on the same Base and Between the same Parallels
Competency	Interpret & Evaluate
Item Type	Closed Constructed Response
Full Credit (Full Score)	No, justification may involve, equal areas does not ensure congruency or drawing of parallelograms between the two parallel lines with the same base but different side lengths. •Parallelograms between two parallel lines have equal areas but their side lengths may be different.
No Credit (No Score)	Any other response or missing response

Item Number	Question 4
Question Code	SAS21M09S0904
Grade & Chapter Name	Grade 9 | Areas of Parallelograms and Triangles
Concept | Sub-concept	Geometry | Parallelograms on the same Base and Between the same Parallels
Competency	Employ
Item Type	Multiple Choice Question
Full Credit (Full Score)	D. Either the corresponding base length or the corresponding altitude of the triangle is the double of the parallelogram's base length or altitude.
No Credit (No Score)	Any other response or missing response

Item Number	Question 5
Question Code	SAS21M09S0905
Grade & Chapter Name	Grade 9 | Areas of Parallelograms and Triangles
Concept | Sub-concept	Geometry | Triangles on the same Base and between the same Parallels
Competency	Employ
Item Type	Open Constructed Response
Full Credit (Full Score)	Accept a valid mathematical division of the triangle area. • Preeti can draw a median of the triangle as it divides the triangle into two triangles of equal area. • Preeti can make a triangle using any side as base and mid-point of the corresponding altitude.
No Credit (No Score)	Any other response or missing response

Item Number	Question 6
Question Code	SAS21M09S0906
Grade & Chapter Name	Grade 9 | Areas of Parallelograms and Triangles
Concept | Sub-concept	Geometry | Triangles on the same Base and Between the same Parallels
Competency	Interpret & Evaluate
Item Type	Multiple Choice Question
Full Credit (Full Score)	C. 90°
No Credit (No Score)	Any other response or missing response

Item Number	Question 7
Question Code	SAS21M09S0907
Grade & Chapter Name	Grade 9 | Areas of Parallelograms and Triangles
Concept | Sub-concept	Geometry | Triangles on the same Base and between the same Parallels
Competency	Employ
Item Type	Multiple Choice Question
Full Credit (Full Score)	A. 1 cm^2
No Credit (No Score)	Any other response or missing response

Item Number	Question 8
Question Code	SAS21M09S0908
Grade & Chapter Name	Grade 9 | Areas of Parallelograms and Triangles
Concept | Sub-concept	Geometry | Figures on the Same Base and Between the Same Parallels
Competency	Employ
Item Type	Multiple Choice Question
Full Credit (Full Score)	C. 3:1
No Credit (No Score)	Any other response or missing response

Item Number	Question 9
Question Code	SAS21M09S0909
Grade & Chapter Name	Grade 9 | Areas of Parallelograms and Triangles
Concept | Sub-concept	Geometry | Figures on the Same Base and Between the Same Parallels
Competency	Interpret & Evaluate
Item Type	Multiple Choice Question
Full Credit (Full Score)	C. 9 cm^2
No Credit (No Score)	Any other response or missing response

Item Number	Question 10
Question Code	SAS21M09S0910
Grade & Chapter Name	Grade 9 | Areas of Parallelograms and Triangles
Concept | Sub-concept	Geometry | Figures on the Same Base and Between the Same Parallels
Competency	Interpret & Evaluate
Item Type	Open Constructed Response
Full Credit (Full Score)	Mentions that the areas of the two parallelograms are the same. The base and height of both the parallelograms are the same, thus areas will be the same.
No Credit (No Score)	Any other response or missing response