



Name: \_\_\_\_\_

Class: \_\_\_\_\_ Date: \_\_\_\_\_

## Fun with Sums: Sails Ahoy!

*An extension of "Indonesia's precious boatbuilding heritage"*

Isn't it incredible that our Indonesian neighbours built such fantastic sailboats as early as the 13<sup>th</sup> century? To find out more, read "**Indonesia's precious boatbuilding heritage**" (page 19, *What's Up* February 2018). As the boats depend on wind power, sails have to be well designed. Try your hand at pinisi designing by working on the following sums.

### QUESTIONS

1. On a scaled drawing of the pinisi sailboat, the foremast measures 14 cm. If the actual height of the mast is 15 m, calculate the scale used in the drawing, and write it below.

ANSWER: Scale: 1 cm = \_\_\_\_\_ (to 2 decimal places)

2. Your boat has seven sails: five sails are triangles; and two sails are right trapeziums with each one's height as one of its sides. The measurements of the scaled drawing of the sails are in the table below. Using the scale calculated in question 1, complete the table. Do your working on the back of this sheet. Round off your answers to 2 decimal places.

ABOUT THE SEVEN SAILS OF YOUR BOAT			Area of the sails	
	Sail's location & shape	Dimensions of the sails in the scaled drawing	In the drawing (cm <sup>2</sup> )	On the real boat (m <sup>2</sup> )
a.	Three sails in the front (right-angled triangles)	Length of the perpendicular sides: 5cm & 6cm respectively.		
b.	Foremast sail (isosceles triangle)	Base: 5.5cm Height: 4cm		
c.	Foremast sail (right trapezium)	Height: 4cm Length of parallel sides: 6.5cm & 9cm respectively.		
d.	Mainmast sail (isosceles triangle)	Base: 6cm. Height: 5cm		
e.	Mainmast sail (right trapezium)	Height: 5cm Length of parallel sides: 7.5cm & 10.5cm respectively.		

3. Calculate the percentage difference between the actual areas of the trapezoidal sails of the Mainmast and the Foremast. State your answer as a percentage of the Foremast area.
4. On graph paper, draw the scaled drawing of the Foremast and Mainmast sails.