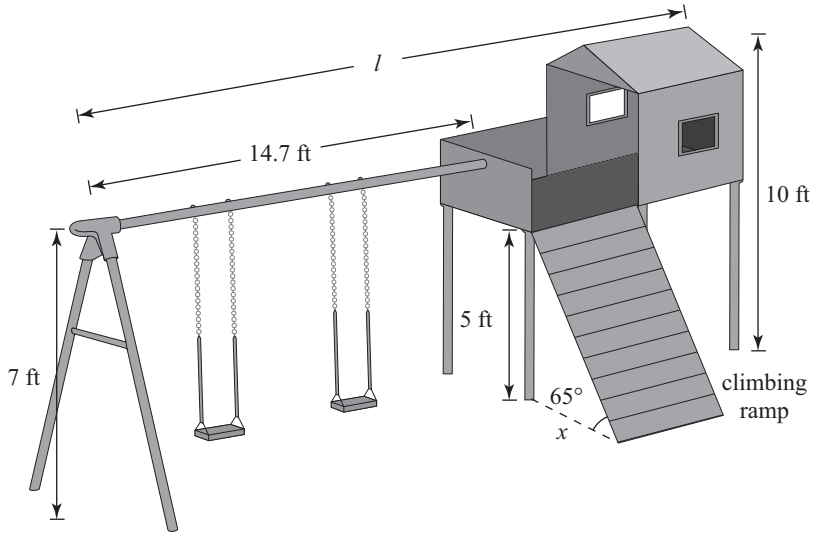
Name: _____ Date: _____

Mathematics 10 Option 2
Final Exam Written Response

Write your response in the space provided. Present your response in a well-organized way, using complete sentences and correct units.

Use this information to answer #1a)–c).

The Johnsons are building a children's play structure in their backyard.



1. a) Assume that the play structure is drawn to proportion. Determine the length of l.

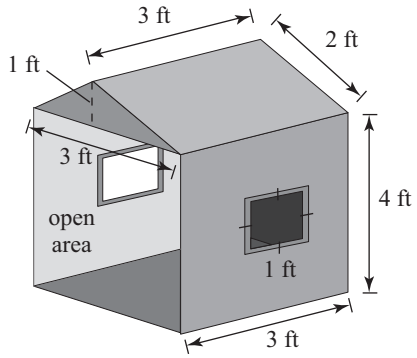
b) What is the length of x, to the nearest tenth of a foot? to the nearest inch?

c) How long is the climbing ramp, to the nearest inch? to the nearest hundredth of a metre?

Name: _____ Date: _____

Use this information to answer #1d)–e).

The house on the play structure has three sides closed in, each with an identical window.



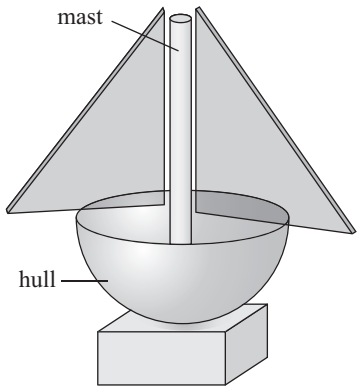
d) Determine the amount of stain needed to treat the exterior of the house, including the roof. Show your work.

e) If 1 can of stain covers 45 ft^2, how many cans of stain are needed?

Name: _____ Date: _____

Use this information to answer #2a).

A water fountain that looks like a sailboat is installed on a playground. The hull and the mast fill with water and then water sprays down the surface of the boat into a basin.

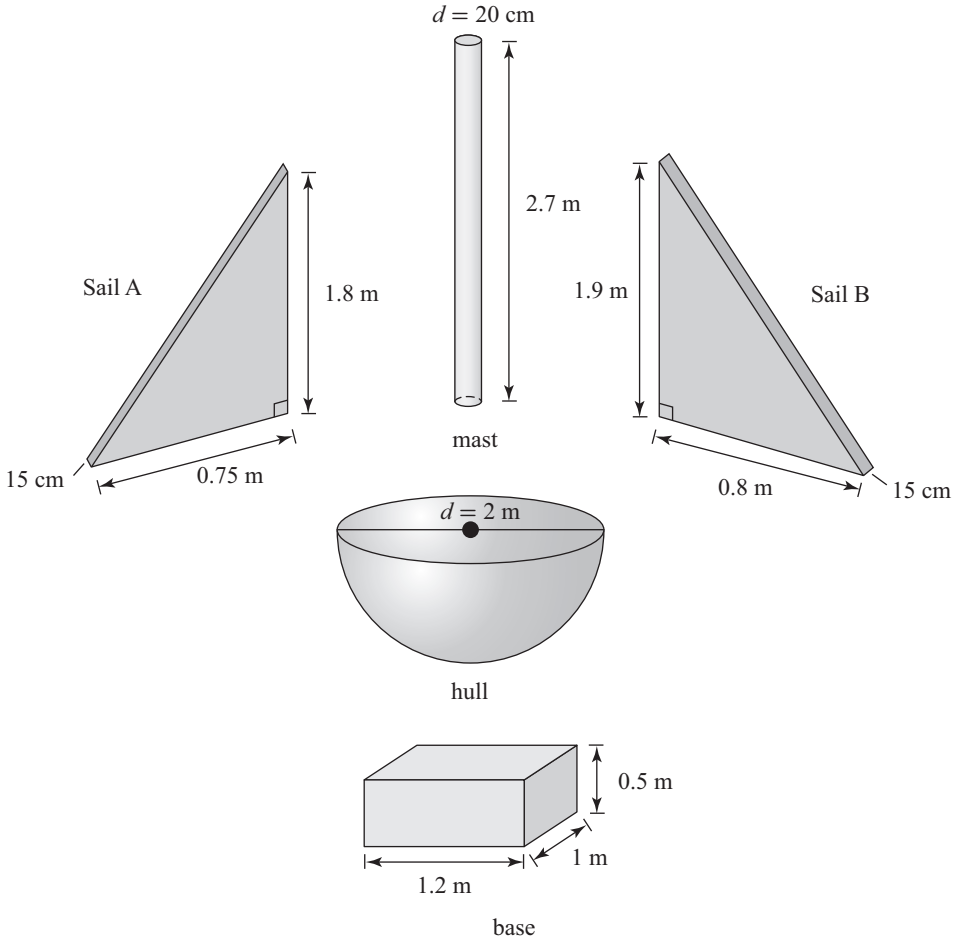


2. a) Assume the scale is 1 cm = 30 cm. If the diagram were 9 cm in height, what would be the height of the fountain, to the nearest tenth of a metre?

Name: _____ Date: _____

Use this information to answer #2b–d).

Each component of the water fountain is shown. The base of the water fountain is shaped like a right prism.



b) Determine the volume of water that the mast and the hull can hold, to the nearest tenth of a cubic metre. Show your work.

Name: _____ Date: _____

c) What is the volume of each sail? Express each answer to the nearest hundredth of a cubic metre. Show your work.

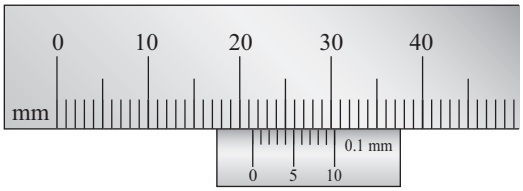
d) Determine the amount of stainless steel used to make the top and the sides of the base, to the nearest tenth of a square metre. Show your work.

Name: _____ Date: _____

Use this information to answer #3.

Cam and David exchanged solutions with those of another group. They were asked to check the work, correct any errors, and explain the error and correct solution. Write the response that Cam and David should develop for each problem.

3. a) Problem: What reading is shown on the caliper?



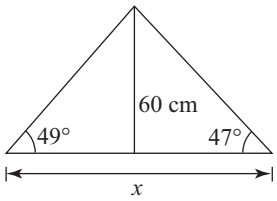
Solution: The reading on the caliper is 1.74 mm.

b) Problem: Determine the area of a park with dimensions 36 ft by 89 ft.
Solution: The park has an area of 1068 yd^2.

c) Problem: On a car trip, the Lee family travelled 200 mi in 3 h. What is this distance in kilometres per hour?
Solution: This distance is approximately 108 km/h.

Name: _____ Date: _____

d) Problem: What is the value of x?



Solution:

$$\sin 49° = \frac{60}{x} \qquad \sin 47° = \frac{60}{x}$$

$$\frac{60}{\sin 49°} = x \qquad \frac{60}{\sin 47°} = x$$

$$x = 80 \qquad x = 82$$

$$80 + 82 = 162$$

The value of x is 162 cm.

e) Problem: Solve the system of linear equations graphically.

$-4x - y - 5 = 0$

$x - y - 2 = 0$

Solution: