



**Task-based Activity Cover Sheet**

**Task Title:** Calculate paint quantity given room dimensions and paint coverage rates

<b>Learner Name:</b>	
<b>Date Started:</b>	<b>Date Completed:</b>
<b>Successful Completion:</b> Yes___ No___	
<b>Goal Path:</b> Employment ✓ Apprenticeship ✓ Secondary School___ Post-Secondary ___ Independence ✓	
<b>Task Description:</b> Learner will calculate the quantity of paint required when given room dimensions and paint coverage rates.	
<b>Competency:</b> C: Understand and Use Numbers	<b>Task Group(s):</b> C3: Use measures
<b>Level Indicators:</b> C3.3: Use measures to make multi-step calculations; use specialized measuring tools	
<b>Performance Descriptors:</b> see chart <a href="#">or click here</a>	
<b>Skill Building Activities:</b> see last page <a href="#">or click here</a>	
<b>Materials Required:</b> <ul style="list-style-type: none"><li>• Paper and pen</li><li>• Calculator</li><li>• Question sheet (attached)</li><li>• Answer sheet (attached)</li></ul>	
<b>ESKARGO:</b> <ul style="list-style-type: none"><li>• Calculates using numbers expressed as whole numbers, fractions, decimals, percentages, and integers</li><li>• Manages unfamiliar elements (context, content) to complete tasks</li><li>• Chooses and performs required operations; makes inferences to identify required</li><li>• operations</li><li>• Interprets, represents, and converts measures using whole numbers, decimals, percentages, ratios, and fractions</li></ul>	
<b>Attitudes:</b> Practitioner, We encourage you to talk with the learner about attitudes required to complete this task set. The context of	



**Prepared for: Cementing Integration Project – QUILL Learning Network 2015**

the task has to be considered when identifying attitudes. With your learner, please check one of the following:

- Attitude is not important       Attitude is somewhat important       Attitude is very important



**Task Title:** Calculate paint quantity given room dimensions and paint coverage rates

Painters use surface area to calculate how much paint is required to complete a job. Look at the “Layout of Living Room” diagram and the paint coverage chart.

The living room:

- Measures  $17\frac{1}{2}$  ft. long by 14 ft. wide and has walls that are 9 ft. tall
- Has two door-ways: one is 8ft wide and  $7\frac{1}{2}$  ft. high and the other is 3.5ft wide and  $7\frac{1}{2}$  ft. high
- Has a picture window that is  $6\frac{3}{4}$  ft. high and 10 ft. wide.

**Learner Information and Tasks:**

**Task 1:** Calculate the area of the picture window

**Task 2:** Calculate the area of the small door

**Task 3:** Calculate the area of the large doorway

**Task 4:** Calculate the area of the ceiling

**Task 5:** Calculate how many gallons and/or quarts of paint are needed to paint the ceiling if 2 coats of paint are required to ensure good coverage?

**Task 6:** Calculate the area of the walls of the room

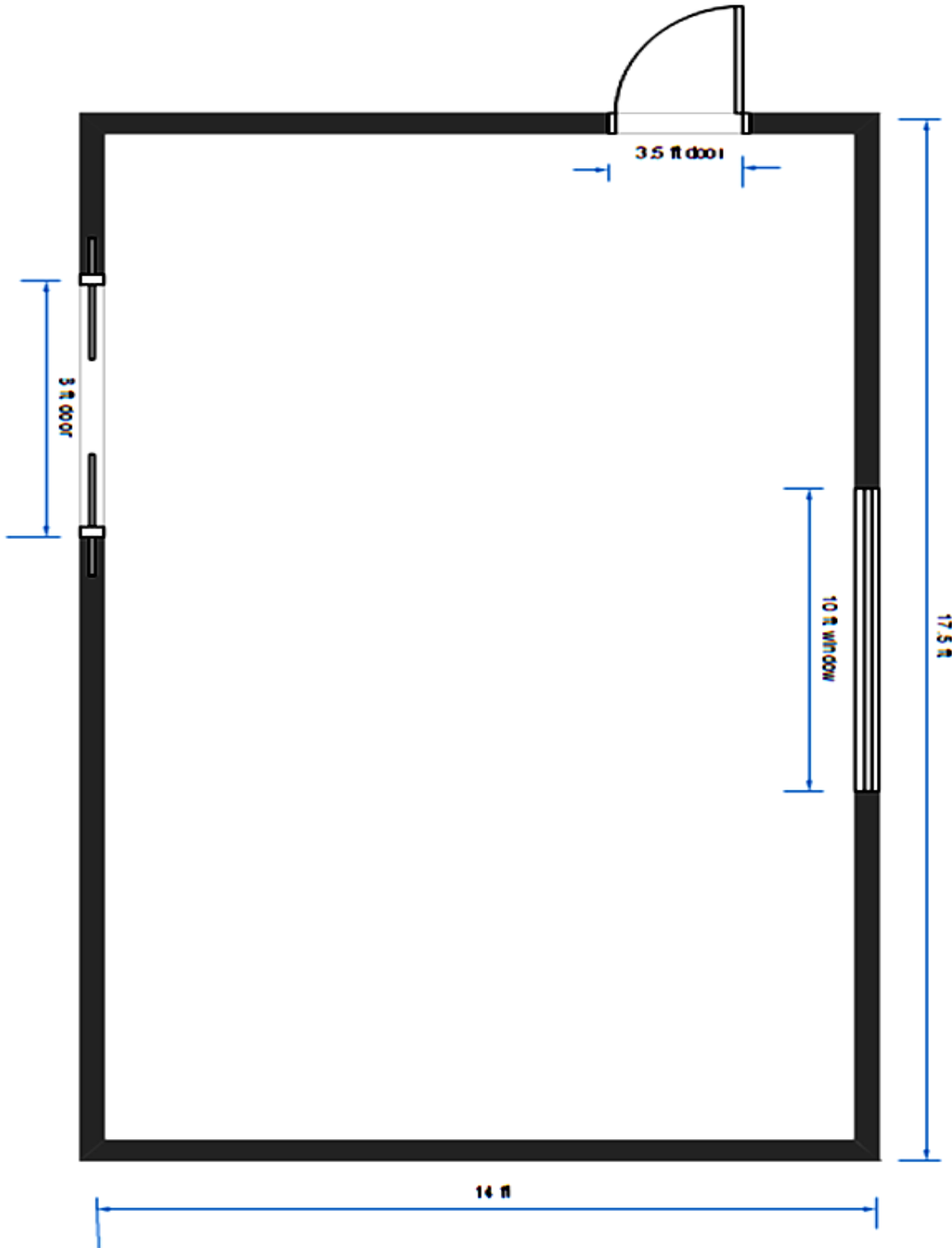
**Task 7:** Calculate how many gallons and/or quarts of paint are needed for the walls if 2 coats of paint are required to ensure good coverage?



The following chart estimates the coverage yielded by each paint can size.

<b>Paint Can Size</b>	<b>Coverage (square ft.)</b>
<b>1 Gallon</b>	<b>400 square feet</b>
<b>1 Quart</b>	<b>100 square feet</b>
<b>1 Pint</b>	<b>25 square feet</b>

Layout of living room.





**Task Title:** Calculate paint quantity given room dimensions and paint coverage rates

**Answer Key**

**Task 1:** Calculate the area of the picture window

$$\text{Area} = \text{length} \times \text{width}$$

$$= 6 \frac{3}{4} \text{ ft.} \times 10 \text{ ft.}$$

$$= 6.75 \text{ ft.} \times 10 \text{ ft.}$$

$$= 67.5 \text{ square feet or } 67 \frac{1}{2} \text{ square feet.}$$

The area of the picture window is **67.5 square feet.**

**Task 2:** Calculate the area of the small door

$$\text{Area} = \text{length} \times \text{width}$$

$$= 7 \frac{1}{2} \text{ ft.} \times 3 \frac{1}{2} \text{ ft.}$$

$$= 7.5 \text{ ft.} \times 3.5 \text{ ft.}$$

$$= 26.25 \text{ square feet or } 26 \frac{1}{4} \text{ square feet.}$$

The area of the small door is **26.25 square feet.**

**Task 3:** Calculate the area of the large doorway

$$\text{Area} = \text{length} \times \text{width}$$

$$= 7.5 \text{ ft.} \times 8 \text{ ft}$$

$$= 60 \text{ square feet}$$

The area of the large doorway is **60 square feet.**

**Task 4:** Calculate the area of the ceiling

$$\text{Area of the Ceiling} = \text{length} \times \text{width}$$

$$= 17.5 \text{ ft.} \times 14 \text{ ft.}$$

$$= 245 \text{ square feet}$$

The ceiling is **245 square feet.**

**Task 5:** (use the learner's answer to Task 4 to calculate if it was not 245 square feet)



Prepared for: **Cementing Integration Project – QUILL Learning Network 2015**

Ceiling Area to be Painted =  $245 + 245 = 490$  square ft.

One gallon of paint covers 400 square feet. That would leave 90 square feet still to cover. One quart of paint covers 100 square feet. So a logical answer would be **one gallon and one quart**. (Five quarts would also be an acceptable answer)

**Task 6:** Calculate the area of the walls of the room \*

*Step 1: The student will need to calculate the total wall area*

Wall 1: Area = length x width

$$= 17.5 \text{ ft.} \times 9 \text{ ft.}$$

$$= 157.5 \text{ square feet}$$

Wall 3 : Area = length x width

$$= 14 \text{ ft.} \times 9 \text{ ft.}$$

$$= 126 \text{ square feet}$$

Wall 2: same as Wall 1 = 157.5 square feet

Wall 4: Same as Wall 3 = 126 square feet

Total Wall Area:  $157.5 + 157.5 + 126 + 126 = 567$  square feet

*Step 2: The learner will need to subtract the window and doors from the Total Wall Area to calculate the Paintable Area of the walls.*

Paintable Area of the Walls = Total Wall Area - Window (Task 1) - Small door (Task 2) - Large door (Task 3)

Paintable Area of the Walls =  $567 - (67.5 + 26.25 + 60) = 413.25$  square feet

**Task 7: (use the learner's answer to Task 6 to calculate if it was not 413.25 square feet)**

Paintable wall area:  $413.25 \times 2 = 826.5$  square feet

2 gallons cover 800 square ft. + 1 quart covers 100 square ft. = 900 square ft. of coverage

**There are 3 correct answers for this question:**

- **Two gallons and one quart** will cover the living room walls with 2 coats of paint.
- **One gallon and five quarts** .....
- **9 quarts** .....

All of these answers are correct. Any other answer will provide too much or too little paint and are not acceptable.



## Prepared for: Cementing Integration Project – QUILL Learning Network 2015

“Determine if the learner’s response is based on an earlier incorrect calculation. The learner should not be penalized for the same incorrect answer more than once. If the learner uses an incorrect answer from a previous question for a subsequent question, a correct score should be given to subsequent calculations that are correct, even if the numbers used are incorrect.” (OALCF Competency C Milestones)





**Task Title:** Calculate paint quantity given room dimensions and paint coverage rates

Performance Descriptors		Needs Work	Completes task with support from practitioner	Completes task independently
C3.3	<ul style="list-style-type: none"><li>calculates using numbers expressed as whole numbers, fractions, decimals, percentages and integers</li></ul>			
	<ul style="list-style-type: none"><li>understands and uses formulas for finding the perimeter, area and volume of non-rectangular, composite shapes</li></ul>			
	<ul style="list-style-type: none"><li>manages unfamiliar elements (e.g. context, content) to complete tasks</li></ul>			
	<ul style="list-style-type: none"><li>chooses and performs required operations; makes inferences to identify required operations</li></ul>			
	<ul style="list-style-type: none"><li>interprets, represents and converts measures using whole numbers, decimals, percentages, ratios and fractions</li></ul>			

**This task:** was successfully completed \_\_\_ needs to be tried again \_\_\_

<b>Learner Comments</b>

\_\_\_\_\_  
**Instructor (print)**

\_\_\_\_\_  
**Learner Signature**



## Skills Building Activities

### Links to Online Resources:

<http://www.gcfllearnfree.org/featured/fractions>

Basic understanding of fractions, working with common denominators, reducing, improper fractions.

<http://www.gcfllearnfree.org/featured/decimals>

Basic math tutorial offers simple and easy techniques for working with and converting decimals and percents.

<https://www.khanacademy.org/math/pre-algebra/measurement/rectangle-area-perimeter-word-pr/v/length-and-width-from-perimeter-and-area>

Rectangular Area and word problems

<https://www.khanacademy.org/math/pre-algebra/measurement/area-basics/v/area-of-rectangles-and-the-distributive-property>

<https://www.khanacademy.org/math/pre-algebra/measurement/area-basics/v/introduction-to-area-and-unit-squares>

<https://www.mathtv.com/>

Geometry- Area, Pythagorean Theorem

<https://www.youtube.com/watch?v=leQGL7k8MSI>

Estimating the Amount Of Paint Needed For Interior Surfaces

<https://www.youtube.com/watch?v=eU2mT2hInsY>

How to use surface area in order to figure out how much paint you will need when you are painting

### LearningHUB online courses available:

- **Math, Independent Study (Assigned by practitioner after assessment)**
  - Fractions Asg. #1 & 2
  - Decimals Assignment
  - Measurement Assignment
  - Geometry Plane Figures Asg. #1
- **Live Classes (SABA)** – Fractions A, B & C, Decimals A & B, Geometry B Part 1, GED Math Word Problems.

**\*To access LearningHUB courses**, learners must register for the LearningHUB e-Channel program by completing the registration form on their website and completing the course selection (page 2 of the registration form): [https://www.learninghub.ca/get\\_registered.aspx](https://www.learninghub.ca/get_registered.aspx)

**\*To Access LearningHUB Course Catalogue:**

<http://www.learninghub.ca/Files/PDF-files/HUBcoursecatalogue,%20December%202023,%202014%20revision.pdf>