Task Title: Calculate Paint Quantity Required

OALCF Cover Sheet – Practitioner Copy

Learner Name: _____

Date Started: _____

Date Completed: _____

Successful Completion: Yes ☐ No ☐

Goal Path: Employment ■ Apprenticeship ■

Secondary School ☐ Post Secondary ☐ Independence ■

Task Description: Calculate the quantity of paint required when given room dimensions and paint coverage rates.

Main Competency/Task Group/Level Indicator:

- Understand and Use Numbers/Use Measures/C3.3

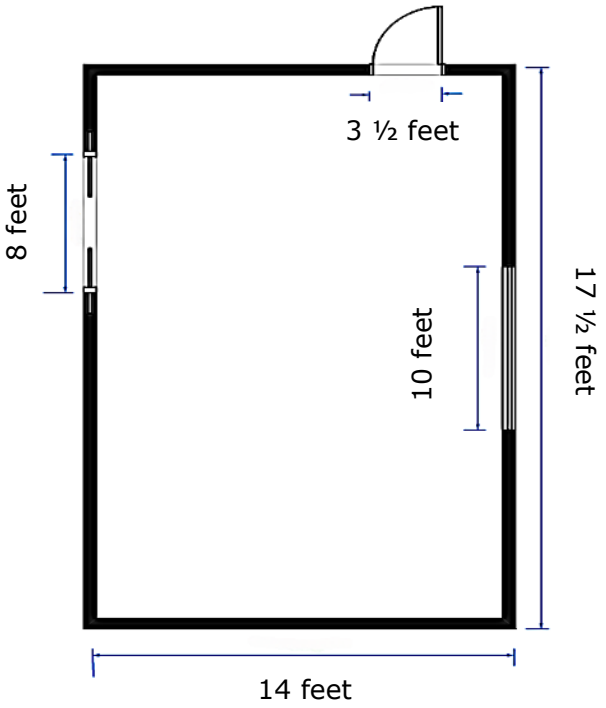
Materials Required:

- Pen/pencil and paper and/or digital device
- Calculator or digital device with calculator function

Learner Information

Painters use surface area to calculate how much paint is required to complete a job. Scan the Layout of Living Room diagram and the Paint Coverage Chart.

Layout of Living Room



The living room:

- measures 17 ½ ft. long by 14 ft. wide and has walls that are 9 ft. tall
- has two door-ways: one is 8ft wide and 7 ½ ft. high and the other is 3.5ft wide and 7 ½ ft. high
- has a picture window that is 6 ¾ ft. high and 10 ft. wide.

Paint Coverage Chart

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

Work Sheet

Task 1: Calculate the area of the picture window.

Answer:

Task 2: Calculate the area of the small door.

Answer:

Task 3: Calculate the area of the large doorway.

Answer:

Task 4: Calculate the area of the ceiling.

Answer:

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

Answer:

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

Answer:

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

Answer:

Answers

Task 1: Calculate the area of the picture window.

Answer:
Area = length x width
= 6 ¾ ft. x 10 ft.
= 6.75 ft. x 10 ft.
= 67.5 square feet or 67 ½ square feet.
The area of the picture window is 67.5 square feet.

Task 2: Calculate the area of the small door.

Answer:
Area = length x width
= 7 ½ ft. x 3 ½ ft.
= 7.5 ft. x 3.5 ft.
= 26.25 square feet or 26 ¼ square feet.

The area of the small door is 26.25 square feet.

Task 3: Calculate the area of the large doorway.

Answer:
Area = length x width
= 7.5 ft. x 8 ft
= 60 square feet
The area of the large doorway is 60 square feet.

Task 4: Calculate the area of the ceiling.

Answer:
Area of the Ceiling = length x width
= 17.5 ft. x 14 ft.
= 245 square feet
The ceiling is 245 square feet.

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

Answer: Use the learner's answer to Task 4 to calculate if it was not 245 square feet.

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

Answer:
Step 1: The student will need to calculate the total wall area
Wall 1: Area = length x width
= 17.5 ft. x 9ft.
=157.5 square feet

Wall 2: Same as Wall 1 = 157.5 square feet

Wall 3: Area = length x width
= 14 ft. x 9 ft.
= 126 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: Calculate how many gallons and/or quarts of paint are needed for the walls if two coats of paint are required to ensure good coverage.

Answer: Use the learner's answer to Task 6 to calculate if it was not 413.25 square feet.

Paintable wall area: 413.25 x 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.

Note: 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.

Performance Descriptors

Levels	Performance Descriptors	Needs Work	Completes task with support from practitioner	Completes task independently
C3.3	calculates using numbers expressed as whole numbers, fractions, decimals, percentages and integers			
	understands and uses formulas for finding the perimeter, area and volume of non-rectangular, composite shapes			
	manages unfamiliar elements (e.g. context, content) to complete tasks			
	chooses and performs required operations; makes inferences to identify required operations			
	interprets, represents and converts measures using whole numbers, decimals, percentages, ratios and fractions			

This task: Was successfully completed ☐ Needs to be tried again ☐

Learner Comments:

Instructor (print): _____

Learner (print): _____