



Task Title: Calculating Cement Mixture Ratios

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: The learner will use ratios to calculate the amounts of different materials required to mix concrete.

Main Competency/Task Group/Level Indicator:

- Understand and Use Numbers/Use measures/C3.2

Materials Required:

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

Learner Information

Construction projects frequently require concrete that is mixed differently depending on how it is being used. Construction workers need to be able to mix appropriate amounts, depending on the ratio used for a specific project.

Scan the "Concrete Mixing Ratio Chart".

Concrete Mixing Ratio Chart		
Compressive Strength	Mixing Ratio cement : sand : stone	Generally used for
2500 psi.	1:2:4	small slabs, fence posts
3000 psi.	1:3:3	slabs, floors, walls, footings
3500 psi.	1:2.5:3	patios, walks, slabs
4000 psi.	1:2:3	driveways, exterior slabs
4500 psi.	1:2:2	commercial floors & slabs

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Work Sheet

Task 1: A construction team is mixing concrete for a patio. Calculate the amounts of sand and stone required for a mixture that has 20 pounds of cement.

Answer:

Task 2: The team is mixing concrete for a driveway and they need 50 pounds of sand. Calculate the amounts of cement and stone they will need.

Answer:

Task 3: The team is mixing concrete with a compressive strength of 3000 psi. Calculate the amounts of cement and sand they will need to mix with 90 pounds of stone.

Answer:

Answers

Task 1: A construction team is mixing concrete for a patio. Calculate the amounts of sand and stone required for a mixture that has 20 pounds of cement.

Answer:

The ratio for patios is 1:2.5:3

20 pounds of cement is 1×20 . The sand and stone ratios must be multiplied by 20:

20 pounds cement : 50 pounds sand : 60 pounds stone

Task 2: The team is mixing concrete for a driveway and they need 50 pounds of sand. Calculate the amounts of cement and stone they will need.

Answer:

The ratio for driveways is 1:2:3

50 pounds of sand is 2×25 . The remaining materials must be multiplied by 25:

25 pounds cement : 50 pounds sand : 75 pounds stone

Task 3: The team is mixing concrete with a compressive strength of 3000 psi. Calculate the amounts of cement and sand they will need to mix with 90 pounds of stone.

Answer:

The ratio for 3000 psi compression strength is 1:3:3

90 pounds of stone is 3×30 . The remaining materials must be multiplied by 30.

30 pounds of cement : 90 pounds of sand : 90 pounds of stone

Performance Descriptors

Levels	Performance Descriptors	Needs Work	Completes task with support from practitioner	Completes task independently
C3.2	calculates using numbers expressed as whole numbers, fractions, decimals, percentages and integers			
	understands and uses ratio and proportion			
	chooses and performs required operation(s); may make inferences to identify required operation(s)			
	selects appropriate steps to reach solutions			
	uses strategies to check accuracy (e.g. estimating, using a calculator, repeating a calculation, using the reverse operation)			

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

Task Title: CalculatingCementMixtureRatios_EA_C3.2

Learner Comments:

Instructor (print):

Learner (print):