



Task Title: Calculate Water Volume and Cost to Fill Pools

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 calculate the volume and cost of water needed to fill backyard pools with different dimensions.

Main Competency/Task Group/Level Indicator:

- Understand and Use Numbers/Manage money/C1.2
- 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

Many people decide to set up an above-ground pool during the summer months. When setting up a pool, it is important to determine how much water will be needed to fill it. If you live in an area where you are charged for water, it is important to estimate the cost of filling the pool before you begin.

Scan the Volume Formulas and the specifications for the round and rectangular pools.

Volume Formulas

Volume of square or rectangular objects = length x width x height

Volume of circular or round objects = πr^2 x height

$$\pi = 3.14$$

r = radius (1/2 of the diameter of the circle)



Round Pool: 30 feet circumference, 20 feet diameter, 3 feet deep



Rectangular Pool: 30 feet long, 6 feet wide, 2 feet deep

Work Sheet

Task 1: Calculate the total volume of water needed to fill the round pool to 1/2 foot (6 inches) from the top.

Answer:

Task 2: If the cost of water is \$0.04 per cubic foot, how much will it cost to fill the round pool?

Answer:

Task 3: Calculate the total volume of water needed to fill the rectangular pool to 1/2 foot (6 inches) from the top.

Answer:

Task 4: If the cost of water is \$0.04 per cubic foot, how much will it cost to fill the rectangular pool?

Answer:

Task 5: Both pools cost the same amount to purchase. Once the customer pays for water to fill the pool, which pool would be the cheaper option and by how much?

Answer:

Answers

Task 1: Calculate the total volume of water needed to fill the round pool to 1/2 foot (6 inches) from the top.

Answer:

$$\text{Radius} = \text{Diameter}/2$$

$$\text{Radius} = 20/2 = 10 \text{ feet}$$

$$\text{Volume} = \pi r^2 \times \text{height}$$

$$\text{Volume} = (3.14)(10^2) \times (3-0.5)$$

$$\text{Volume} = (3.14)(100) \times (2.5)$$

$$\text{Volume} = 314 \times 2.5$$

$$\text{Volume} = 785 \text{ feet}^3$$

Task 2: If the cost of water is \$0.04 per cubic foot, how much will it cost to fill the round pool?

$$\text{Answer: } 785 \times 0.04 = \$31.40$$

Task 3: Calculate the total volume of water needed to fill the rectangular pool to 1/2 foot (6 inches) from the top.

Answer:

$$\text{Volume} = \text{length} \times \text{width} \times \text{height}$$

$$\text{Volume} = 30 \times 6 \times (2-0.5)$$

$$\text{Volume} = 30 \times 6 \times 1.5$$

$$\text{Volume} = 270 \text{ feet}^3$$

Task 4: If the cost of water is \$0.04 per cubic foot, how much will it cost to fill the rectangular pool?

$$\text{Answer: } 270 \times 0.04 = \$10.80$$

Task Title: CalculateWaterVolumeCostToFillPools_SPI_C1.2_C3.3

Task 5: Both pools cost the same amount to purchase. Once the customer pays for water to fill the pool, which pool would be the cheaper option and by how much?

Answer: The rectangular pool is the cheaper option by \$20.60 ($\$31.40 - \$10.80$).

Performance Descriptors

Levels	Performance Descriptors	Needs Work	Completes task with support from practitioner	Completes task independently
C1.2	calculates using numbers expressed as whole numbers, fractions, decimals, percentages and integers			
	interprets and applies rates (e.g. \$/kg, \$/1)			
	chooses and performs required operation(s); may make inferences to identify required operation(s)			
	selects appropriate steps to reach solutions			
	represents costs and rates using monetary symbols, decimals and percentages			
	uses strategies to check accuracy (e.g. estimating, using a calculator, repeating a calculation, using the reverse operation)			
C3.3	calculates using numbers expressed as whole numbers, fractions, decimals, percentages and integers			
	calculates the radius, diameter and circumference of circles			

Task Title: CalculateWaterVolumeCostToFillPools_SPI_C1.2_C3.3

Levels	Performance Descriptors	Needs Work	Completes task with support from practitioner	Completes task independently
C3.3 cont.	understands and uses formulas for finding the perimeter, area and volume of non-rectangular, composite shapes			
	chooses and performs required operations; makes inferences to identify required operations			
	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 ☐

Learner Comments:

Instructor (print):

Learner (print):
