

POND MEASUREMENT DETERMINING AREA IN ACRES, VOLUME IN ACRE-FEET AND AVERAGE DEPTH

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1 Square or Rectangular Pond

FORMULA: Area = Length x Width

Example: Pond is 200' x 350' = 70,000 square feet
 $70,000 \div 43,560 = 1.6$ surface acres
Average depth = 3.2 feet

$1.6 \text{ acres} \times 3.2 \text{ feet} = 5.1 \text{ acre feet of water}$

2 Triangular Pond

FORMULA: Area = $\frac{1}{2}$ x Base x Height

Hint: **Base** = shoreline length along the dam and **Height** = distance from centerpoint of shoreline along dam to the upper end of pond

Example: Pond averages 4.2 feet and is 200' along the dam and 500' to upper end from dam

$\frac{1}{2} (200' \times 500') = 50,000 \div 43,560 = 1.1$ surface acres
 $1.1 \text{ surface acres} \times 4.2 \text{ feet} = 4.6 \text{ acre-feet of water}$

- 1 surface acre contains 43,560 square feet of surface area
- 1 acre-foot of water contains 43,560 cubic feet of water or 326,000 gallons of water

(continued on other side...)

3 Circular Pond

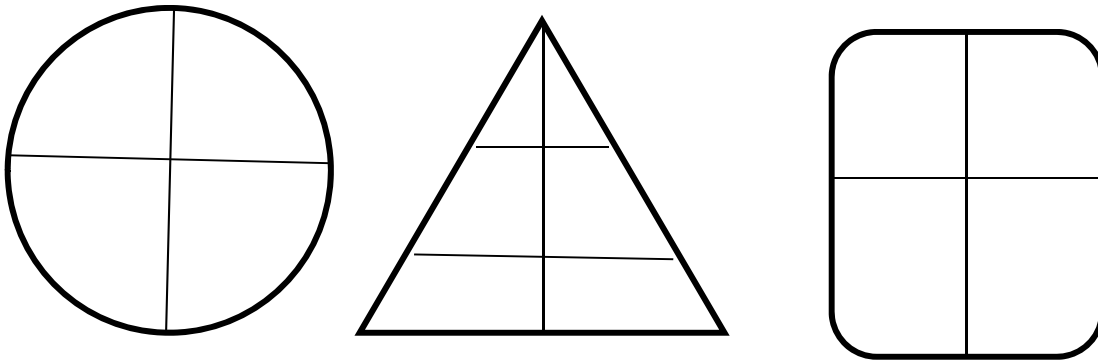
FORMULA: Area = 3.14 x (Radius)²

Hint: **Radius** is ½ of the pond's diameter

Example: Pond averages 3.9 feet deep and is 150'
Across the middle (diameter)

$$3.14 \times (75')^2 \div 43,560$$
$$17,662.5 \div 43,560 = 0.41 \text{ surface acres}$$
$$0.41 \text{ acres} \times 3.9 \text{ feet} = 1.6 \text{ acre-feet}$$

CALCULATING AVERAGE DEPTH



The lines shown within each pond shape are suggested transect lines to take depth soundings along.

FORMULA: Sum of All Soundings ÷ No. of Soundings

Hint: Measure depth in feet using a calibrated rope and anchor or pole marked in feet. Begin each transect at the bank with a zero and end on the far bank with zero. The more transects and the more soundings taken along each transect, the more accurate your depth estimate will be!

Example: Circular pond has depths (in feet) of 0, 3, 3, 6, 7, 4, 2, 0 for
Transect 1 and 0, 3, 6, 6, 4, 4, 1, 0 for Transect 2.

$$49 \div 16 = 3.1 \text{ feet}$$

Average depth of pond is 3.1 feet