

Calculation of Air Consumption

To convert depth to atmospheres:

$$\text{Depth} / \text{atm's} + 1\text{atm} = \text{ATA's}$$

Example:

$$66\text{ft.} / 33 = 2\text{atm's (gauge)} (+) 1(\text{air}) = 3\text{ATA's}$$

To calculate your Depth Consumption Rate:

$$\text{PSI used} / \text{Time} = \text{Depth Consumption Rate (DCR)}$$

Example:

$$225\text{psi} / 3 \text{ min.} = 75\text{psi/min (DCR)}$$

To calculate Surface Air Consumption rate:

$$\text{DCR} / \text{atm's} = \text{Surface Air Consumption rate. (SCR)}$$

Example:

$$75\text{psi} / 3\text{atm} = 25\text{psi/min (SAC)}$$

To Calculate air use for a future dive:

$$\text{Sac Rate (X) ATA's} = \text{DCR then}$$

$$\text{Pressure available} / \text{DCR} = \text{Est. bottom time.}$$

Example:

$$25\text{psi/min (SAC)} \times 3\text{ATA's} = 75\text{psi/min. (DCR)}$$

$$3000\text{psi} / 75\text{psi} = 40\text{min. Bottom time estimated.}$$

*There are many variables, which could and probably will effect the accuracy of this estimate.

ALWAYS CHECK YOUR PRESSURE GAUGE!

Calculating Atmospheres from depth:

- What is the number of atmospheres absolute (ATA's) if a diver is in 132ft. of water. _____
- What number of ATA's is 80ft.? _____
- What number ATA's is if a diver is in 29ft.? _____

Calculating DCR

- A diver is in 66ft of water and used 1800psi in 20minutes. What is his DCR? _____
- A diver is in 132ft. of water and uses 2400psi in 12minutes. What is his DCR? _____
- A diver is in 80ft. of water & uses 1600psi of air in 15 minutes. What is her DCR? _____

Air Consumption Problems

- What is SAC rate for a diver who uses 2400psi of air at 99ft, in 20min.? _____
- What is the SAC rate for a diver who uses 1200psi in 10 minutes at 132ft.? _____
- What is the SAC rate for a diver who uses 800psi in 40psi at 33ft.? _____

Dive Table Review Questions

1. State the maximum rate of ascent according to NAUI dive tables. _____
 2. List the minimum amount of time needed between dives. _____
 3. NAUI recommends how long minimum between dives? _____
 4. Describe the order dives should be made according to depth. _____
 5. State the minimum depth used when planning for dive at 20 ft. _____
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List the Letter Group for the following dive profiles:

1. You do a dive to 60 feet for 42 minutes. _____
 2. You do a dive to 40 feet for 88 minutes. _____
 3. You do a dive to 120 feet for 9 minutes. _____
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List the new Letter Group for the following Surface Interval Times:

1. You have a letter group of I and your SIT is 2 hours and 36 minutes . _____
 2. You have a letter group of C and your SIT is 3 hours. _____
 3. You have a letter group of G and your SIT is 42 minutes. _____
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1. If you have a beginning Letter Group of D and you want to dive to 60 feet, your AMDT is _____ minutes.
2. If you have a new letter group of B and you want to dive to 90 feet, your AMDT is _____ minutes.
3. If you have a beginning letter group of G, you can dive to 80 feet for _____ minutes.
4. If you have a beginning Letter Group of E and you dive to 57 feet, your RNT is _____ minutes.
5. If you have a beginning Letter Group of G and you dive to 37 feet, your RNT is _____ minutes.
6. If you have a beginning Letter Group of C and you dive to 67 feet for 22 minutes, your TNT is _____ minutes.
7. If you have a beginning Letter Group of D and you dive to 54 feet for 18 minutes, your TNT is _____ minutes.

