



Deep Sea Darkness



Think e Matics

STUDENT COMPANION

Name: _____



Deep Sea Darkness



1. Which of the follow is the best definition of the word **immersion**?

- a. to fill or take up space
- b. to experience or participate in an activity
- c. descend below the surface
- d. to entice by charm or attraction

2. In the phrase “Humans are not physically nor **anatomically** well adapted to the environmental conditions...” what is the meaning of the word anatomically?

- a. not regular or artificial
- b. as regards to the bodily structure
- c. awkward or bulky
- d. not absolutely necessary



3. What is the main idea of **What is Underwater Diving**?

- a. Deep sea diving can be hazardous and risky
- b. Nitrogen narcosis can be deadly or paralyze the body
- c. Equipment is secondary to proper diving training
- d. Humans should not deep-sea dive

4. According to paragraph 2, what does the author recommend to **avoid** nitrogen narcosis?

- a. take decompression stops
- b. use a larger sized air tank
- c. use more breathing gas during descension
- d. avoid diving at great depths

5. According to the author a six-bar is explained as which of the following?

- a. When a diver uses six decompression stops to avoid narcosis
- b. When a diver descends six times deeper than recommended
- c. When a diver uses an air tank that can hold six-times the amount of air
- d. When a diver breathes six times as much air on the surface





Depth (meters)	Depth (feet)	Deep Sea Diving Regulations & Achievements
100 meters	330 feet	One of the recommended technical diving limits. Maximum depth authorized for divers that have completed the Trimix Driver certification.

Deep Sea Darkness

1. Which of the following represents 59 feet below the limit for recreational divers under age 12?

- a. Average depth at which nitrogen narcosis systems begin to be noticeable in adults.
- b. Depth at which breathing air exposes the diver to an oxygen partial pressure of 1.4 bar.
- c. Depth at which breathing air exposes the diver to an oxygen partial pressure of 1.4 bar.
- d. Deep limit for divers specified by Recreational Scuba Training Council.

2. Which of the following represents the distance from where breathing air exposes the diver to an oxygen partial pressure of 1.4 bar to sea level?

- a. $-|610| = 610$
- b. $|-610| = 0$
- c. $|-610| = -610$
- d. $|-610| = 610$



3. Which of the following expressions would represent a diver's ascension from a starting point of 330 feet below sea level to 98 feet below sea level?

- a. $-98 + 232$
- b. $-330 - 98$
- c. $-330 - (-98)$
- d. $-330 + 232$

4. A diver begins his/her descension at 66 meters below sea level. The diver stops and takes a decompression stop at 116 meters below sea level. Which of the following represents the distance in meters from the diver's descension to the decompression stop?

- a. -116 meters
- b. -182 meters
- c. -50 meters
- d. -60 meters

5. Which of the following represents the distance from the world record for deepest scuba dive to sea level?

- a. -1089 feet
- b. $|-1089| = 1089$
- c. $|-332| = 0$
- d. $|1089| = -1089$



DSD : SC 2

The Deeper You Go.....

Deep Sea Darkness

6. An expert scuba diver begins his ascension at the limit for surface light penetration sufficient for plant growth in clear water. The diver ascends 64 feet and then takes a 45 second decompression stop. Which of the following represents the diver's location below sea level?
- a. $-394 + 64 = -330$
 - b. $394 + 64 = 458$
 - c. $-394 + 64 - 45 = -375$
 - d. $394 - 64 = -458$
7. Which of the following absolute values represents the distance from where an Atmospheric Diving Suit is necessary to sea level?
- a. $-|610| = 610$
 - b. $|-610| = 0$
 - c. $|-610| = -610$
 - d. $|-610| = 610$



8. A diver began his/her descension from a decompression stop at 132 feet below sea level. The diver suffered nitrogen narcosis and lost consciousness. The diver descended 101 feet from the decompression stop (132 feet below sea level). Which of the following represents the diver's distance from sea level when he/she regained consciousness?
- a. $-132 - 101 = -233$ feet below sea level
 - b. $-132 - 233 = -365$ feet below sea level
 - c. $132 + 233 = -365$ feet below sea level
 - d. $-132 - 101 = -203$ feet below sea level



 **DSD : SC 2**
Mind Check
The Deeper You Go.....



Extend Your Thinking 1



Vertical Number Line Planning Space

Deep Sea Darkness

- How many packs of each High-Pressure Gauge Hose would need to be purchased to have the exact length of hoses in inches?
 - 1 pack of 12" hoses, 1 pack of 20" hoses, 2 packs of 30" hoses
 - 6 packs of 12" hoses, 10 packs of 20" hoses, 15 packs of 30" hoses
 - 2 packs of 12" hoses, 4 packs of 20" hoses, 6 packs of 30" hoses
 - 5 pack of 12" hoses, 3 packs of 20" hoses, 2 packs of 30" hoses
 - DGX Adaptors are sold (8) in a pack and BEX Adaptors are sold (12) to a package. If the divers want to have the same number of each adapter for inventory purposes, what is the least number of packs of each adaptor will the dive team need to purchase?
 - 3 packs of DGX adapters and 2 packs of BEX adapters would need to be purchased to have the same number of each adapter for inventory purposes.
 - 2 packs of DGX adapters and 3 packs of BEX adapters would need to be purchased to have the same number of each adapter for inventory purposes.
 - 8 packs of DGX adapters and 12 packs of BEX adapters would need to be purchased to have the same number of each adapter for inventory purposes.
 - 4 packs of DGX adapters and 1 pack of BEX adapters would need to be purchased to have the same number of each adapter for inventory purposes.
- Which of the following strategies should be used to determine how many packs of each High-Pressure Gauge Hose would need to be purchased to have the exact length of hoses in inches?
 - To ascertain the same total length, you would need to find the LCM of 12", 20", 30". This will tell you how many of each hose you would need.
 - To ascertain the same total length, you would need to create multiples of 2 for each different type of hoses. This will tell you how many of each hose you would need.
 - To ascertain the same total length, you would need to find the GCF of 12", 20", 30". This will tell you how many of each hose you would need.
 - To ascertain the same total length, you would need to find the factor that will give you a product of 60 when multiplied by each hose length.



Mind Check

DSD : SC 3

Taking Inventory: Part One





DSD: SC3

Taking Inventory- Part Two

Taking Inventory



www.divingislife.com

Item	Qty (packs)	Cost per Pack	Total Item Qty.	Unit Cost	Total
12" High Pressure Gauge Hose (3) per pack		27.99			
20" High Pressure Gauge Hose (3) per pack		39.99			
30" High Pressure Gauge Hose (3) per pack		44.99			
DGX Adapters: Ishmael 2nd Stage (8) per pack		87.60			
BEX Adapters: Cyclone 2nd Stage (12) per pack		197.99			
DISCOUNTS	-	-	-	-	
SHIPPING	-	-	-	-	
TAX (7%)	-	-	-	-	
TOTAL				-	



Deep Sea Darkness



DSD : SC 3

Taking Inventory- Part Two

1. 12" High Pressure Gauge Hoses come 5 in a pack. Which of the following would represent the unit cost (cost per hose) for the 12" hoses?

- a. \$46.65 per hose
- b. \$5.00 per hose
- c. \$9.33 per hose
- d. \$11.45 per hose

2. The BEX Adapters: Cyclone 2nd Stage come 12 per pack. Which of the following would represent the unit cost (cost per adapter) for the BEX Adapters: Cyclone 2nd Stage? (Round to the nearest penny)

- a. \$16.50 per adapter
- b. \$23.75 per adapter
- c. \$24.00 per adapter
- d. \$39.60 per adapter

3. Which of the following represents the subtotal? Do not include the percent discount or tax.

- a. \$387.22
- b. \$775.40
- c. \$1,125.75
- d. \$575.60

4. If Mac and Chanel use their www.divingislife.com credit card they will get a 15% discount off of the subtotal. Which of the following represents the discount Mac and Chanel would receive if they use the credit card?

- a. \$16.46 discount
- b. \$98.86 discount
- c. \$116.31 discount
- d. \$215.47 discount

5. If Mac and Chanel had to pay 7% sales tax on their subtotal after their discount, which of the following represents the amount of tax that would be applied to their final subtotal?

- a. \$46.14
- b. \$49.99
- c. \$116.31
- d. \$560.23

6. After the 15% discount has been applied, the 7% sales tax and shipping cost has been added, which of the following would be the final total cost for the supplies Mac and Chanel at www.divingislife.com?

- a. \$755.22
- b. \$1,225.75
- c. \$432.26
- d. \$867.25



EXTEND

3



YOUR THINKING



Describe, in paragraph form, what a diver needs to consider in order to determine approximately how long a scuba air tank last?

Handwriting practice area with horizontal lines and a faint background watermark of a brain and the text "Think e Matics".

Deep Sea Darkness

1. Utilize the information presented above to help you calculate the total atmospheric pressure. Which of the following represents the total atmospheric pressure?

- a. atmospheric pressure of 1
- b. atmospheric pressure of 100
- c. atmospheric pressure of 10
- d. atmospheric pressure of 25

2. Use the formula to calculate the total PSI per minute. Which of the following represents Mac's psi per minute?

- a. 15.9 psi per minute
- b. 159 psi per minute
- c. 1.59 psi per minute
- d. 1591 psi per minute



3. Use the formula to calculate the total PSI per minute. Which of the following represents Chanel's psi per minute?

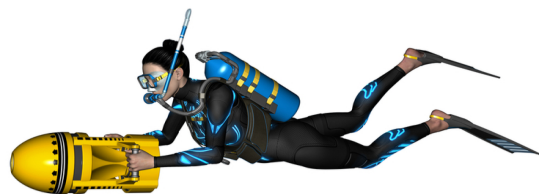
- a. 178 psi per minute
- b. 17.8 psi per minute
- c. 1.78 psi per minute
- d. 1789 psi per minute

4. Use the formula to calculate the total Tank Time for Mac. Which of the following represents an approximation of Mac's total tank time?

- a. approximately 46 minutes
- b. approximately 16 minutes
- c. approximately 30 minutes
- d. approximately 22 minutes

5. Use the formula to calculate the total Tank Time for Chanel. Which of the following represents an approximation of Chanel's total tank time?

- a. approximately 17 minutes
- b. approximately 31 minutes
- c. approximately 12 minutes
- d. approximately 60 minutes



DSD : SC 4
Surface Air Consumption Rates

Deep Sea Darkness

1. Match each of the following "Pings" with its corresponding coordinate.

Ping A

(6, 3)

Ping B

(1, -2)

Ping C

(8, -4)

Ping D

(-13, 5)

Ping E

(1, 9)

Ping F

(-8, 7)

Ping G

(-10, 3)

Ping H

(-12, 6)

Ping I

(6, 10)

Ping J

(-5, -10)

Ping K

(0, 3)

Ping L

(5, -11)



2. Mac and Chanel's SONAR received a ping from **coordinate L**. How many seconds did it take to get from the coordinate back to the SONAR if the total travel time to the ping and back was $21\frac{1}{3}$ seconds?

- a. 12 seconds
- b. $42\frac{2}{3}$ seconds
- c. $21\frac{1}{3}$ seconds
- d. $10\frac{2}{3}$ seconds

3. Mac and Chanel's SONAR received a ping from **coordinate H**. How many seconds did it take to get from the SONAR to the coordinate if the total travel time to the ping and back was $26\frac{3}{5}$ seconds?

- a. $13\frac{3}{10}$ seconds
- b. $53\frac{1}{5}$ seconds
- c. $26\frac{1}{4}$ seconds
- d. $13\frac{2}{5}$ seconds



DSD : SC 5

Using Sonar





Deep Sea Darkness



DSD : SC 5 Using Sonar

4. If the SONAR picked up another ping that was a **reflection in the y-axis** of coordinate **A**, which of the following coordinates would represent the location of the ping?

- a. (13, 5)
- b. (-13, -5)
- c. (13, -5)
- d. (-13, 5)

5. If the SONAR picked up another ping that was a **reflection in the x-axis** of coordinate **C**, which of the following coordinates would represent the location of the ping?

- a. (-1, -9)
- b. (9, 1)
- c. (1, -9)
- d. (-9, 1)

6. A coordinate was **reflected in the y-axis**. The reflected coordinate's location is (-4, 13). What is the location of **original** coordinate?

- a. (4, 13)
- b. (-13, 4)
- c. (13, -4)
- d. (-4, -13)

7. A coordinate was **reflected in the x-axis**. The reflected coordinate's location was (5, 11). Which of the following is the location of the **original** coordinate?

- a. (-11, 5)
- b. (11, 5)
- c. (-5, -11)
- d. (5, -11)

8. Which **Quadrant** only picked up **one** ping?

- a. IV
- b. III
- c. II
- d. I

9. Which **Quadrant** picked up the **most** pings?

- a. II
- b. IV
- c. III
- d. I

10. Ping **A** was **reflected in the y-axis**. Which of the following **Quadrants** is Ping **A** now located?

- a. II
- b. IV
- c. III
- d. I



Deep Sea Darkness



Mind Check

DSD : SC 6

To Dive or Not to Dive

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1. Calculate the descent rate for every 10 feet from 0-300 feet. Which of the following represents the descent rate for every 10 feet from 0-300 feet?</p> <ul style="list-style-type: none">a. 2 and $\frac{1}{2}$ seconds to descend every 10 feetb. 20 and $\frac{2}{3}$ seconds to descend every 10 feetc. 5 and $\frac{1}{5}$ seconds to descend every 10 feetd. 4 and $\frac{2}{15}$ seconds to descend every 10 feet | <p>2. Calculate the descent rate for every 1 foot from 0-300 feet. Which of the following represents the descent rate for every 1 foot from 0-300 feet?</p> <ul style="list-style-type: none">a. 4 and $\frac{2}{15}$ seconds to descend every footb. $\frac{31}{75}$ seconds to descend every footc. 12 and $\frac{2}{5}$ seconds to descend every footd. $\frac{1}{2}$ second to descend every foot |
| <p>3. Calculate the ascent rate for every 10 feet from 300-0 feet. Which of the following represents the ascent rate for every 10 feet from 300-0 feet?</p> <ul style="list-style-type: none">a. 2 and $\frac{1}{4}$ seconds to ascend every 10 feetb. 11 and $\frac{1}{4}$ seconds to ascend every 10 feetc. 1 and $\frac{1}{8}$ seconds to ascend every 10 feetd. 4 and $\frac{2}{5}$ seconds to ascend every 10 feet | <p>4. Calculate the ascent rate for every 1 foot from 300-0 feet. Which of the following represents the ascent rate for every 1 foot from 300-0 feet?</p> <ul style="list-style-type: none">a. 2 and $\frac{1}{4}$ seconds to ascend every 1 footb. $\frac{9}{40}$ seconds to ascend every 1 footc. 4 and $\frac{2}{5}$ seconds to ascend every 1 footd. 1 and $\frac{1}{2}$ seconds to ascend every 1 foot |





On Their Way Down

Seconds	Feet
0	0
20 $\frac{2}{3}$	
35 $\frac{2}{3}$	
56 $\frac{1}{3}$	
86 $\frac{1}{3}$	
107	
137	
157 $\frac{2}{3}$	
202 $\frac{2}{3}$	
223 $\frac{1}{3}$	
268 $\frac{1}{3}$	
289	
349 $\frac{2}{3}$	
361 $\frac{2}{5}$	



Deep Sea Desperados

On Their Way Up

Seconds	Feet
0	-330
11 $\frac{1}{4}$	
56 $\frac{1}{4}$	
67 $\frac{1}{2}$	
112 $\frac{1}{5}$	
123 $\frac{9}{20}$	
153 $\frac{3}{4}$	
165	
195	
206 $\frac{1}{4}$	
221 $\frac{1}{4}$	
232 $\frac{1}{2}$	
247 $\frac{1}{2}$	
258 $\frac{3}{4}$	

Deep Sea Darkness



Complete the descend and ascend tables found below in your student companion. Find the total sum of the descent and ascent times in seconds. After you collect the total descent and ascent times in seconds, convert the seconds to minutes.



DSD : SC 7

The Descend & Ascend Rates

On Their Way Up

FEET	DESCENT TIME (seconds)	DECOMPRESSION STOPS (seconds)	TOTAL TIME (seconds)
0	0	0	0
50		15	
100		30	
150		30	
200		45	
250		45	
300		60	
330		0	
Totals			

FEET	ASCENT TIME (seconds)	DECOMPRESSION STOPS (seconds)	TOTAL TIME (seconds)
330	0	0	0
280		45	
230		45	
180		30	
130		30	
80		15	
30		15	
0		0	
Totals			

On Their Way Down

- After completing the descend and ascend tables, find the total descent time in minutes. Which of the following approximately represents the **total descent time in minutes**?
 - approximately 6 minutes
 - approximately 12 minutes
 - approximately 33 minutes
 - approximately 15 minutes

- After completing the descend and ascend tables, find the total ascent time in minutes. Which of the following approximately represents the **total ascent time in minutes**?
 - approximately 4 minutes
 - approximately 10 minutes
 - approximately 8 minutes
 - approximately 22 minutes

Deep Sea Darkness

3. After you collected the total descent and ascent times in seconds, and converted the seconds to minutes, approximately how much time will Mac have left to explore below before his air tanks run out?

- a. approximately 45 minutes
- b. approximately 22 minutes
- c. approximately 11 minutes
- d. approximately 18 minutes

4. After you collected the total descent and ascent times in seconds, and converted the seconds to minutes, approximately how much time will Chanel have left to explore below before her air tanks run out?

- a. approximately 7 minutes
- b. approximately 14 minutes
- c. approximately 17 minutes
- d. approximately 30 minutes



EXTEND
4 
YOUR THINKING

The Descent

On Their Way Down

Seconds	Feet
0	0
20 $\frac{2}{3}$	
35 $\frac{2}{3}$	
56 $\frac{1}{3}$	
86 $\frac{1}{3}$	
107	
137	
157 $\frac{2}{3}$	
202 $\frac{2}{3}$	
223 $\frac{1}{3}$	
268 $\frac{1}{3}$	
289	
349 $\frac{2}{3}$	
361 $\frac{2}{5}$	



On Their Way Up

Seconds	Feet
0	-330
11 $\frac{1}{4}$	
56 $\frac{1}{4}$	
67 $\frac{1}{2}$	
112 $\frac{1}{5}$	
123 $\frac{9}{20}$	
153 $\frac{3}{4}$	
165	
195	
206 $\frac{1}{4}$	
221 $\frac{1}{4}$	
232 $\frac{1}{2}$	
247 $\frac{1}{2}$	
258 $\frac{3}{4}$	





DSD : SC 8

Chanel's Gold

Chanel's Live Gold Spot Price= \$1,770.70

Gold Pieces	Total Ounces	Price per Ounce	Value per Gold Piece	Quantity	Value
4.25 ounces Troy		\$1770.70	\$	10.5	\$
8.75 Carats		\$1770.70	\$	22	\$
84.5 Grams		\$1770.70	\$	42.5	\$
0.35 ounces Troy		\$1770.70	\$	17.25	\$
2.45 kilograms		\$1770.70	\$	1	\$
Total Value	-	-	-	-	\$

- 1 Troy Ounce = 1.1 ounces
- 1 Carat= 0.007 ounces
- 1 gram= 0.04 ounces
- 1 kilogram= 35.3 ounces



**SO HOW MUCH
IS CHANEL'S
GOLD WORTH?**

What Happened to Mac?



Mac never surfaced. So what happened? Sounds like a creative writing opportunity! Your task is to write an article for Diving is Life Magazine. Be sure to include highlights of the dive, but most importantly describe what happened to Mac during the dive. Please use evidence from the text of this performance task to help you write your article. You get to decide what happened to the lost Desperado.

EXTEND
**5**
YOUR THINKING

Handwriting practice area with horizontal lines and a large, colorful, abstract brain graphic in the background.

Think e Matics



