Name: _____ Date: _____ Period: _____

Problem Solving with SpongeBob

For each question, write and evaluate (solve) a mathematical expression. **All answers should be expressed as a rational number**. Be sure to include the unit in your solution!

Question	Work and Solution
1) SpongeBob Squarepants lives in a pineapple under the sea. His pineapple is submerged at a depth of 46.2 feet below sea level. Patrick, who lives under a rock, is located 1.96 feet farther down from SpongeBob. What is the depth of Patrick's rock? **Mathematical Expression:** _____	
2) Bikini Bottom has been experiencing some temperature issues recently. Last Thursday, SpongeBob had to wear every article of clothing he owned because it had gotten so cold – all the way down to –5°F! To stay warm, Mr. Krabs set the temperature inside the Krusty Krab to a boiling 112°F. What was the difference between the temperature inside the Krusty Krab and outside in Bikini Bottom? **Mathematical Expression:** _____:	
3) The Krusty Krab was holding their annual football tournament. SpongeBob, who was unwillingly drafted by Patrick, was put in the game after half-time. On his first play, SpongeBob was tackled by Sheldon for a loss of 23 yards. In a huff, he got back up but was tackled again for a loss of 18 more yards. How many yards did SpongeBob lose on both plays? **Mathematical Expression:** _____	
4) By the end of the game, things were looking up for SpongeBob. In the fourth quarter, he had plays of -5 yards, 14 yards, -7 yards, -1 yard, and 10 yards. What was SpongeBob's average yards per play during the last quarter? **Mathematical Expression:** _____	
5) Patrick, feeling guilty about making SpongeBob play in the football game, gave SpongeBob an early birthday present of $52. SpongeBob quickly spent $45.56 on a new pair of pants since his old ones got ripped during the game. Luckily, Sandy repaid the $3.16 she owed SpongeBob for buying her a Krabby Patty. Unfortunately, that same day, SpongeBob went a bit overboard and spent $21.50 on a new tie. How much money does SpongeBob have? **Mathematical Expression:** _____	
6) Meanwhile, the temperature continued to remain frightfully cold in Bikini Bottom. The temperature reached a ridiculous $-14\frac{3}{8}$°F. Before dawn, the temperature dropped another $4\frac{1}{2}$°F. Thankfully, by noon, it had risen 8.6°F. What was the temperature at noon? **Mathematical Expression:** _____	

7) Sandy Cheeks was in her underwater tree dome located 818 feet below sea level. If Sandy descends at a rate of 5 feet per second, how long will it take her to reach her tree dome from the top of the ocean? Express your answer as a rational number.

Mathematical Expression: _____

8) Around lunch time, Sandy began feeling hungry, she decided to visit SpongeBob at his pineapple. Sandy ascended 251.7 feet and found herself at SpongeBob's front door. What is Sandy Cheek's new depth? (HINT: Sandy's initial location can be found in #7)

Mathematical Expression: _____

9) While Sandy was visiting SpongeBob, she expressed her excitement about her next trip to the moon. Sandy claimed the moon was $514\frac{1}{4}$ meters above sea level. How far apart will Sandy and SpongeBob be if SpongeBob is $37\frac{4}{7}$ meters below sea level?

Mathematical Expression: _____

10) Meanwhile, Sheldon Plankton found himself in a pickle. His bookkeeper had taken the day off and he was trying to figure out how much money he had made that day. During his first hour of business, Plankton made $6.18. After another hour, he lost $15.24 when he accidentally dropped all his food in the garbage. Thankfully, a very hungry Patrick entered the Chum Bucket and Plankton made $7.68. How much money did Sheldon earn?

Mathematical Expression: _____

11) During the cold snap, Sandy Cheeks decided it would be wise to install an elevator to take her from the surface down to her underwater treedome. The elevator descends at a rate of $3\frac{1}{3}$ meters per second. After 8.25 seconds, how far has the elevator traveled?
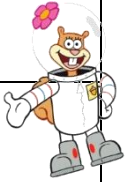
Mathematical Expression: _____

12) Sandy's elevator started 19.6 meters above ground. What is the depth of Sandy's elevator after 8.25 seconds?
(HINT: Use your answer from the previous problem)

Mathematical Expression: _____

13) Just as Sandy finished her elevator, the temperature began to rise. Sandy told SpongeBob that the makers of her astronaut suit said that it was unsafe to travel unless the temperature was above 0°F. At midnight, the temperature was at -19°F. Luckily, by 6 a.m., the temperature had risen to 25°F. What was the overall change in temperature (expressed as an integer)?

Mathematical Expression: _____

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