Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Algebra II

Score: \_\_\_\_\_\_ / 13

Period: \_\_\_\_\_\_\_\_\_\_\_\_\_ **Cumulative Review #1.1**

***Directions:*** Show all work in order to receive full credit (*including multiple choice questions*). A correct answer with no supporting work will only receive one credit. Be sure to show all appropriate formulas and formula substitutions as part of your work.

1. If $\left(a^{3}+27\right)=\left(a+3\right)\left(a^{2}+ma+9\right)$, then $m$ equals **[correct answer = 1 points, work = 2 points]**

|  |  |
| --- | --- |
| 1) | -9 |
| 2) | -3 |
| 3) | 3 |
| 4) | 6 |

1. Write $-\frac{1}{2}i^{3}\left(\sqrt{-9}-4\right)-3i^{2}$ in simplest $a+bi$ form. **[4 points]**
2. The Beaufort Wind Scale was devised by British Rear Admiral Sir Francis Beaufort, in 1805 based upon observations of the effects of the wind. Beaufort numbers,$ B$, are determined by the equation $B=1.69\sqrt{s+4.45}-3.49$, where $s$ is the speed of the wind in mph, and $B$ is rounded to the nearest integer from 0 to 12.



1. Using the table above, classify the force of wind at a speed of 30 mph. Justify your answer. **[2 points]**
2. In 1946, the scale was extended to accommodate strong hurricanes. A strong hurricane received a $B$ value of exactly $15$. Algebraically determine the value of $s$, to the nearest mph. **[4 points]**