# Class SpellControl

## Function calcDamage

This function must calculate the damage caused by casting a spell.

The inputs are:

The character’s level

The character’s Charisma ability

The spell’s base damage

The spell’s damage per character level – random number from 1 to damage

The output to return is an integer that the program will then subtract from the target’s hit points.

We will validate the skill and ability values when the player creates the character and when we generate the spell from the class definition, so all inputs will be valid.

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|  | **calcDamage Test Matrix**  **Test Cases** | | | | | | | | |
| **Valid Input** | **Boundaries** | | | | | | | |
| **Inputs** | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Level | 6 | 1 | 20 | 10 | 10 | 10 | 10 | 10 | 10 |
| Charisma | 16 | 11 | 11 | 11 | 22 | 11 | 11 | 11 | 11 |
| Base damage | 0 | 6 | 6 | 6 | 6 | 0 | 20 | 6 | 6 |
| Damage/level | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 3 | 20 |
| **Outputs** |  | | | | | | | | |
| spellDamage |  | 7-12 | 26-126 | 16-66 | 76-126 | 10-60 | 30-80 | 16-36 | 16-206 |
| Test Case |  | Low lvl | High Lvl | Low Cha | High Cha | Low Base | High Base | Low Dmg/Lvl | High Dmg/Lvl |

Rnd = rnd() \* [Spell.damagePerLevel] + 1.0

spellDamage = Character.level \* (Rnd + ((Character.abilities[5] – 10) / 2)) + Spell.baseDamage

|  |  |  |  |  |  |  |  |  |  |
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|  | **calcLore**  **(variables in memory for each case)** | | | | | | | | |
| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Character.level | 6 | 1 | 20 | 10 | 10 | 10 | 10 | 10 | 10 |
| Character.abilities[5] | 16 | 11 | 11 | 11 | 22 | 11 | 11 | 11 | 11 |
| Spell.baseDamage | 0 | 6 | 6 | 6 | 6 | 0 | 20 | 6 | 6 |
| Spell.damagePerLevel | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 3 | 20 |
| spellDamage | 49 | 8 | 110 | 67 | 111 | 60 | 41 | 26 | 50 |