Name: $\qquad$
Directions: Show all work.

1. [3 points] A store sells packs of light bulbs in colors red, blue, green, purple, orange, and white. How many ways are there to purchase 8 packs of light bulbs?
2. [4 points] How many integer solutions are there to $x_{1}+x_{2}+x_{3}=50$ such that $x_{1} \geq 4$, $x_{2} \geq-8$, and $x_{3} \geq 0$ ?
3. [3 points] How many ways are there to choose 3 integers from $\{1, \ldots, 20\}$ if every chosen integer must be at most distance 9 from some other chosen integer? For example, $\{3,12,17\}$ works since $|12-3| \leq 9$ and $|17-12| \leq 9$, but $\{3,13,17\}$ does not since $|13-3|=10>9$.
