Week of July 13-17
High School Summer Math Challenge *Required

1. Student Number *

2. My name is: *

3. Next year I will be attending *

*Mark only one oval.*

- [ ] Cascade High School
- [ ] Everett High School
- [ ] HM Jackson High School
- [ ] Sequoia High School
- [ ] Other
4.  1. Find the area of the heart pictured below. The squares in the grid are $1 \times 1$ squares.

Mark only one oval.

Option 1

$\frac{3}{4}$

Option 2

$2 + \frac{1}{2} \pi$

Option 3

$2 + \frac{3}{4} \pi$

Option 4

$3 + \frac{1}{2} \pi$
5. Five note cards each contain a different single-digit numeral. The cards are arranged to find the largest possible 5-digit number, then rearranged to find the smallest possible 5-digit number. The sum of these two numbers is 99,089. What is the sum of the 5 digits on the cards?

Mark only one oval.

☐ 20
☐ 21
☐ 22
☐ 23

6. We write a date as mm/dd/yyyy. In 2017, no date will be palindromic since 71/02/2017 is not possible. What is the next palindromic date? The date is...

7. Two vertical poles with heights of 20 feet and 30 feet are installed with their bases 25 feet apart. Chains are connected from the top of each pole to the base of the other pole. How high above the ground do the chains cross?

Mark only one oval.

☐ 8 ft.
☐ 10 ft.
☐ 11 ft.
☐ 12 ft.
8. Fenguo has 2 quarters, 3 nickels, and 3 pennies. If she selects 3 coins at random, what is the probability that the total value is exactly 35 cents? (write in the form of \( \frac{a}{b} \))