

---

**Set 1**

**Problem 1.** What is  $1 - 2 + 3 - 4 + 5 - 6 + 7 - 8 + \cdots + 19 - 20$ ?

**Problem 2.** What is the area of a triangle with side lengths 13, 14, and 15?

**Problem 3.** How many numbers are between 505 and 700, inclusive?

**Problem 4.** What is the greatest common factor of 117 and 156?

---

## Set 2

**Problem 5.** It takes Marbury 1 hour to deliver 6 letters and Madison 3 hours to deliver 60 letters. How many letters can they deliver in an 8 hour work day?

**Problem 6.** In quadrilateral  $ABCD$ ,  $\angle DAC = 75^\circ$ ,  $\angle ACB = 40^\circ$ ,  $\angle DBC = 75^\circ$ , and  $\angle BDC = 25^\circ$ . Find the measure of angle  $\angle DCA$ .

**Problem 7.** What are the sum of the factors of 16?

**Problem 8.** There are 100 people in math team. If 53 of them do cross country, 27 of them do art club, and 38 of them do neither, how many do both?

---

## Set 3

**Problem 9.** In a round robin tournament, everyone competes against everyone else. If there are 8 teams, how many matches are there?

**Problem 10.** If I roll three die, what is the probability the numbers on the three die sum to 16?

**Problem 11.** I have a rectangle with perimeter 36. What is the maximum possible area of the rectangle?

**Problem 12.** Let  $20ABC16$  be a perfect square, with  $A$ ,  $B$ , and  $C$  as digits. What is the three-digit number  $ABC$ ?