

- A1. Find the sum of the coordinates of the point of intersection of the lines with equations  $x - 2y = 6$  and  $x + y = 5$ .
- A2. Let  $k$  be the number you receive. Find the area of the region that remains when a circle of radius 3 is cut out of a circle of radius  $4 + k$ .
- A3. Let  $k$  be the number you receive. Find the positive solution of the equation  $(x + 5)(x + 6) = k / \pi$ .
- A4. Let  $k$  be the number you receive. Find the  $x$ -intercept of the line with equation  $\frac{x}{k} + \frac{y}{2k} = 1$ .
- A5. Let  $k$  be the number you receive. Mary is  $3k$  years older than Tom. In  $k$  years, she will be twice as old as Tom is then. How many years old is Tom now?

- B1. Find the  $y$ -coordinate of the point in the first quadrant where the line  $x + y = 5$  intersects the parabola  $y = x^2 + 2x + 1$ .
- B2. Let  $k$  be the number you receive. If the length of a rectangle is  $k$  more than its width and the area of the rectangle is 96, find the rectangle's width.
- B3. Let  $k$  be the number you receive. Find the largest two-digit number whose digits sum to  $k$ .
- B4. Let  $k$  be the number you receive. Find the smallest positive integer  $x$  such that  $kx$  is a perfect square.
- B5. Let  $k$  be the number you receive. Find the area of an isosceles right triangle whose legs have length  $2k$ .

- C1. Find area of the triangle in the first quadrant whose edges lie on the coordinate axes and the line  $2x + 3y = 6$ .
- C2. Let  $k$  be the number you receive. Find the negative solution of the equation  $|2x + 1| = k$ .
- C3. Let  $k$  be the number you receive. Find the  $x$ -coordinate of the vertex of the parabola with equation  $y = x^2 - 2kx + 5$ .
- C4. Let  $k$  be the number you receive. Simplify  $\frac{1}{1 + \frac{1}{k + 1 + \frac{1}{k + 1}}}$
- C5. Let  $k$  be the number you receive. If the area of a circle is  $k$  square units, how many units long is the radius?

D1. Given that  $f(x+1) = 2x^2 + 5x - 1$ , find  $f(-2)$ .

D2. Let  $k$  be the number you receive. Find the slope of the line passing through  $(1, 1)$  and  $(k, 4)$ .

D3. Let  $x$  and  $y$  be the numbers you receive from the front and the back. Simplify  $(x^{-1} + y^{-1})^{-1}$ .

D4. Let  $k$  be the number you receive. Find the radius of the circle  $x^2 + y^2 - 4x - 6y = 8 - k$ .

D5. Find the remainder when  $p(x) = x^4 + 3x^2 - x$  is divided by  $x + 1$ .