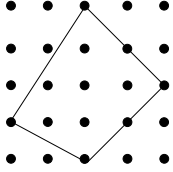
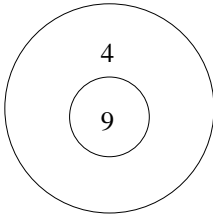


# AB EXAM

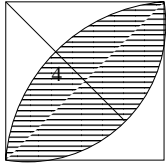
1. Find the area of the shaded region on the following geoboard if the unit of measurement is  $1 \text{ cm}^2$ .



2. If  $\sqrt{19^2 + 19^2 + \dots + 19^2} = 19^2$ , how many times must  $19^2$  appear in the radicand?
3. What is the last digit of  $3^{1118}$ ?
4. A clerk mistakenly reversed the two digits in the price of a comic book, overcharging the customer 27 cents. If the sum of the digits is 11, what was the correct price, in cents, of the comic book?
5. What is the highest score that you cannot get on the dartboard shown if you may throw as many darts as you wish?



6. In the square shown, each curve is an arc of a circle with radius 4, having centers at the vertices of the square. Find the number of square units in the area of the shaded portion of the figure. Express your answer in terms of  $\pi$ .



7. At Pigskins High School 20% of the boys and 80% of the girls attended a football game. If 45% of the student body is female, what percent of the school population attended the game?

8. How many square units are in the area of the polygon ABCD with vertices A(-4,4), B(1,4), C(1,-1) and D(-4,-1)?

9. How many integral values exist for  $x$  such that  $\frac{1}{4} < \frac{x}{5} < \frac{2}{3}$ ?

10. The average of two numbers is 15. Find the smaller number if the smaller is  $\frac{2}{3}$  the larger.
11. A man has 2 investments: one paying a 6% annual interest and the other paying 5%. The 5% investment is \$680 more than half the 6% one. If the total return after one year is \$102, find the investment at 5%.
12. A store has grapefruit on sale for 11 grapefruit per dollar. How many whole grapefruit can be purchased for 6 dollars and 40 cents?
13. You visit an island where the inhabitants are divided into type groups, those that always tell the truth and those that always lie. You meet three people: Tom, Dick and Harry. Tom says "All three of us are liars." Dick says, "Not so, only two of us are liars." Harry says "Not so, the other two are lying." Which, if any, of these three people is telling the truth?
14. A  $4 \times 4 \times 4$  cube made of white styrofoam is painted maroon and then cut into 64 unit cubes. How many of these small cubes will have paint on exactly two faces?
15. A survey of 60 freshmen business students at a large university produced the following results:  
19 read *Business Week*;  
18 read *The Wall Street Journal*;  
50 read *Fortune*;  
13 read *Business Week* and *The Wall Street Journal*;  
11 read *The Wall Street Journal* and *Fortune*;  
13 read *Business Week* and *Fortune*;  
9 read all three.  
How many read none of the publications?

16. The number  $N_2$  is 25% more than the number  $N_1$ , the number  $N_3$  is 20% more than  $N_2$ , and the number  $N_4$  is  $x\%$  less than  $N_3$ . For what value of  $x$  is  $N_4 = N_1$ ?

17. When the integer  $N$  is divided by 5 a remainder of 1 is left, when  $N$  is divided by 7, a remainder of 2 occurs. Find the remainder when  $N$  is divided by 35.