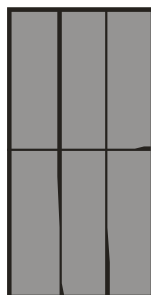


# Annual Math Contest

1. At 7:00 AM A member of the Board of Elections observes 8 people waiting at the entrance to the poll. In how many different orders can the voters be allowed to enter?

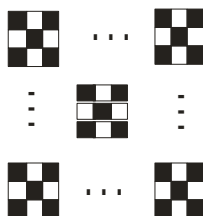
2. Among the 8 people who arrived at 7:00 are two siblings Sam and Pat. What's the probability that they are separated in line by exactly 2 people (to the nearest thousandth)?

3. The curtain to the voting machine is divided by pleats into identical rectangles. If the perimeter of each rectangle is 8 feet, What are the dimensions of the whole curtain?



4. Each member of the Board of Elections is supposed to serve a 3 hour shift. A member started his shift at 7:00 AM. and his replacement is late. In fact his replacement doesn't arrive until the hands on the clock overlap. How late is the replacement (to the nearest minute)?

5. The floor of the polling place is tiled in a checkerboard pattern with alternating black and white tiles. There are black tiles in each of the 4 corners of the room and the diagonals of the room total to 41 tiles. If the tiles are 12 inch squares, find the dimensions of the room.



6. A reporter conducting exit polls tries to guess presidential candidate chosen by voters he interviews. He guesses wrong on the first voter but gets the next three right. What is the smallest number of consecutive guesses he must get right to be at least 90% correct with his guesses?

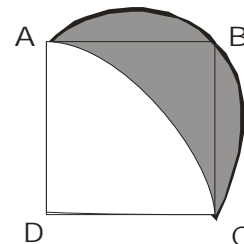
7. A resident of Eastwick arrives at the poll to find they have a choice among 3 presidential tickets, 1 of two candidates for US Senate, 1 of two candidates for RI Senate, 1 or 3 candidates for RI house, 3 out of 5 members for town council and 3 out of 8 candidates for the local school board. How many different ways can the voter fill in his ballot?

8. A collection of coins is made up of an equal number of pennies, nickels, dimes and quarters. What is the largest possible value for a collection that is less than \$5.00?

9. The Eastwick *Sentinel* advertises that its Sunday paper costs  $\frac{1}{3}$  of the price of the rest of the week's daily papers. If a weekly subscription costs between \$5.95 and \$6.05, what's the cost of a Sunday paper plus a daily paper?

10. How many four-digit whole numbers occur such that the left-most digit is odd, the second digit is even, and all four digits are different?

11. Given the length of each side of the square ABCD is 1, find the shaded area of the crescent shaped loon ABC. Note: the shape is bounded by semicircle ABC and the arc of a circle centered at point D.



Open only to J&W students in good standing. One entry per student.

1st prize value \$150, 2nd prize value \$100, 3rd prize value \$50.

In case of ties prize money will be divided.

All entries must be accompanied by student's name, mailing address and telephone number.

All Providence entries should be turned in to Mr. Duston, Department of Mathematics, 5th floor of the John Hazen White Center, 30 Chestnut Street, Providence, RI.

Entries from any of the other campuses may be faxed to 401-598-1821.

All entries must be turned in during regular business hours 8:30 am to 4:30 pm. Entries must be received by Thursday, May 8, 2008

Winners posted by 9:00, Monday, May 12, 2008. Decision of Judges Final.

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