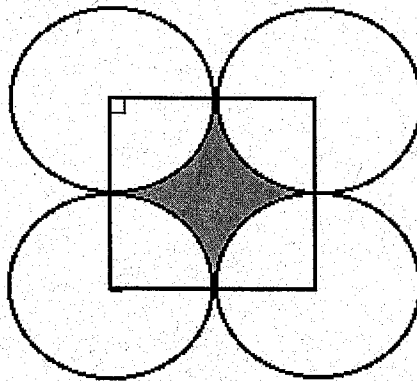# 2007 Washington State Math Championship

Unless a particular problem directs otherwise, give an exact answer or one rounded to the nearest thousandth.

Potpourri – Grade 8

1. Express the base six number 3425 as a base ten number.

2. When two numbers are added, the total is 47. When they are multiplied together, the product is 420. What is the positive difference of the numbers?

3. In the following figure, the diameter of each circle is 16 inches. What is the area, in square inches, of the shaded portion? Answer exactly.

4. April Fools Day (April 1st) is on a Sunday this year. What day of the week will April Fools Day land on in the year 2019?

5. For what values of x will the inequality hold true?

   $$3x^2 + 12 > 24$$

6. Two six-sided dice came out of production with a slight error. Neither of them contained all the digits from 1 to 6. The first die contained the following digits: 0, 1, 2, 2, 4, 5. The second die contained the following digits: 2, 3, 3, 5, 5, 6. These two dice are rolled. What is the probability that the sum of the numbers rolled is an odd number?
   Answer as a reduced fraction.

7. After finishing and getting very frustrated with your math assignment that your teacher gave you, you went and hole-punched the worksheet so badly that you were left the following. What is the sum of the missing numbers?

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  6 _ 8
x  2 _
_____
_ 2 9 7 8
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8. What is the smallest positive number that leaves a remainder of one when divided by three, two when divided by four, and three when divided by five?

9. Your science teacher gave you a flask with 800 mL of solution in it. That solution is a mixture of juice and water. When you add 50 mL of juice to the flask, you find that 70% of the new mixture is juice. How much water, in mL, was in the flask originally?

10. If 100 people are sitting in a circle and every second person leaves the circle (starting with the second person), which person (in terms of their position) will be the last person in the circle?