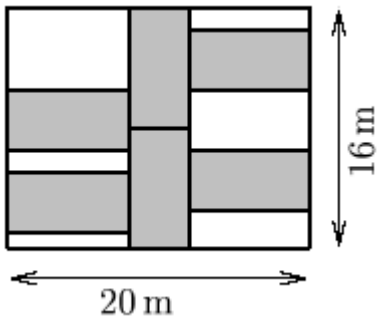
PIMS Elementary Grades Math Competition NAME: _____
30 April 2011
Target Round - Grade Six Division SCHOOL: _____

1. The sides of the large rectangle are 20m and 16m. All 6 shaded rectangles have the same shape and area (in square metres). What is the total area, in square metres, of all the shaded regions?



_____(m) 1

2. In a contest to guess the number of coins in a jar, Amy guessed 43, Ben guessed 51, and Carl guessed 61. The average of two of the guesses was correct and each guess was off by an even number. How many coins were there in the jar? _____ 2

3. Store A sells a TV for 24% less than the manufacturer's suggested retail price (MSRP). Store B sells the same TV for 5% less than the MSRP. By how many percent is the TV at store B more expensive than it is at store A? _____(%) 3

4. The following multiplication uses all of the digits 0 to 9, once each. What is the value of E? $A2B \times C3 = 5DE01$. _____ 4

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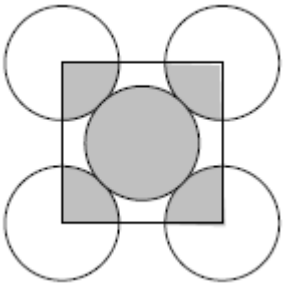
5. All 5 circles have the same radius.
The combined area of the shaded regions is 128π.
What is the area of the square?



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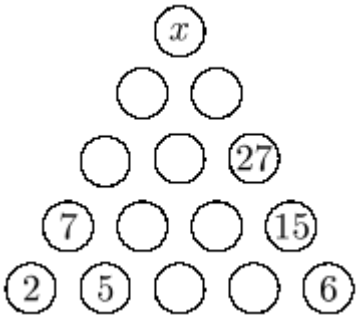
6. How many of the positive factors of 100 are also factors of 150?
Note: 1 and 100 are factors of 100. _____ 6

7. The number in each circle is the sum of the numbers in the two circles immediately below the circle. What is the value of x?



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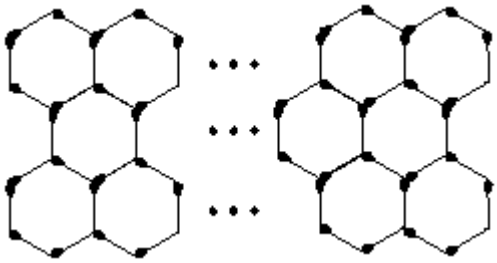
8. The pattern consists of three rows of hexagons where the top and the bottom rows both have 20 hexagons and the middle row has 19 hexagons. A single match is used to construct a side of each of the hexagons, and if two hexagons share a side, then a single match is used for that shared side. How many matches were used in total?



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9. What is the largest whole number N such that $N^3 < 2011$?

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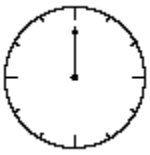
10. A clock shows that it is 12:00 noon and the minute hand of the clock covers the hour hand exactly. How much time (in hours) passes from 12:00 noon until the next time when the minute hand covers the hour hand exactly? Express your answer as a common fraction.



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11. The digit sum of 32 is a multiple of 5 and so is the digit sum of 46. How many positive numbers smaller than 100 have digit sum a multiple of 5? Note: for a single digit number the digit sum is the same as the value of the number.

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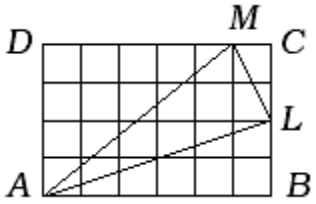
12. The rectangle $ABCD$ is made up of identical small squares. You choose a point at random inside rectangle $ABCD$. What is the probability that the point is inside triangle ALM? Express your answer as a common fraction.



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