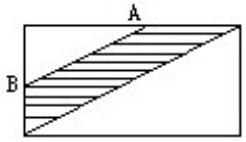
PIMS Elementary Grades Math Competition NAME: _____
30 April 2016
Target Round - Grade Seven Division SCHOOL: _____

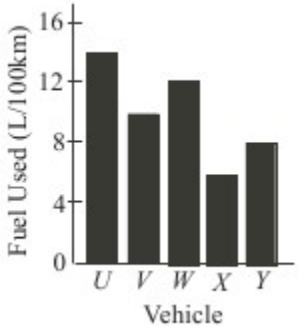
1. A and B are the midpoints of two adjacent sides in the rectangle below.
What fraction (in lowest terms) of the rectangle is shaded?



_____ 1

2. What is the positive difference between the mean
and the median of the set of numbers below?
{−10,−4,−2,−2,−1,1,2,2,4,150} _____ 2

3. In the diagram below, the fuel consumption of five cars
are 14, 10, 12, 6, and 8 Litres/100km as shown.
What is the average consumption (of fuel per car)
of the five cars in km/Litres?
Provide your answer as a common fraction in lowest terms.



_____ (km/L) 3

4. Consider the following sequence: 1 (sum of the factors of 1),
3 (sum of the factors of 2), 4 (sum of the factors of 3),
7 (sum of the factors of 4), 6 (sum of the factors of 5), …
What is the sum of all the terms that each has value less than 15? _____ 4

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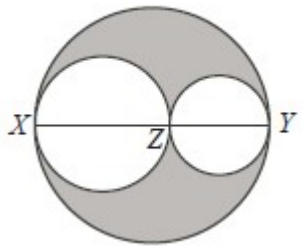
5. $N > 500$ is a perfect square.
What is the smallest possible value of N?

_____ 5

6. 100 hungry students eat together 225 pizza slices.
N of them ate one slice, $N+30$ ate two slices,
and the rest ate three slices.
What is the value of N?

_____ 6

7. $XZ = 3$, $YZ = 2$, and $XY = 5$ are all diameters
of the 3 circles in the figure below.
What percentage of the large circle is shaded?



_____ (%) 7

8. A, B, C, D, and E are different even numbers between 1 and 11.
Find the smallest possible positive value of $\frac{(A+B)(C-D)}{E}$.
Express your answer as fraction in lowest terms.

_____ 8

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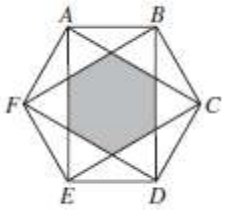
9. Leonard's clock runs 400 seconds faster every day.
If he wants to have the correct time at exactly 8:00 AM tomorrow,
how many minutes should he set his clock back today at 2:00 PM? _____ (m) 9

10. A group of 5 students won a prize: Alfie got \$300,
Betti got $\frac{1}{3}$ of the total prize, Charlie got 50% of what Betti got,
Dalton got twice as much as Alfie, and Erin got $\frac{5}{12}$ of the prize.
How many dollars was the prize? _____ (\$) 10

11. The shaded region is a regular hexagon enclosed
inside another regular hexagon $ABCDEF$.
The area of the shaded region is 12.
What is the area of $ABCDEF$?



_____ 11

12. How many positive whole numbers less than 2016 have digit sum of 10? _____ 12