PIMS Elementary Grades Math Competition
29 April 2006
Target Round - Grade Seven Division

NAME: _____

SCHOOL: _____

1. Simplify: $\frac{432143214321}{4321} =$

_____ 1

2. A pair of two consecutive odd numbers that are both primes is called "Twin Primes". The first such pair is {3,5} and the sum of its members is 8. The second such pair is {5,7} and the sum of its members is 12. What is the sum of the members of the fifth pair of "Twin Primes" ?

_____ 2

3. A bus leaves Vancouver every day of the week en route to Toronto at 1 AM and every 4 hours thereafter (day or night) and it travels for 4 days and 7 hours before reaching Toronto. How many buses are en route from Vancouver to Toronto at 3 PM ?

_____(buses) 3

4. A group of seven people including Pims and Smip, line up in a row at random. What is the probability that there is exactly one person between Pims and Smip ? Express your answer as a common fraction.

_____ 4

5. $X = 7.2$, $Y = 7.2$. Round $X \times Y$ to the nearest whole number.

_____ 5

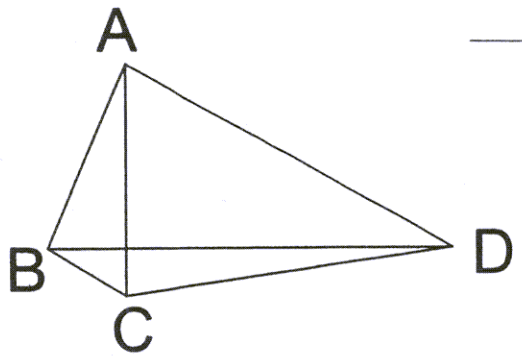
6. Let p be a prime number between 40 and 60.
What is the probability that $p + 12$ is also a prime number ?
Express your answer as a common fraction.

_____ 6

7. Let the operation $\otimes$ be defined as $\otimes(a,b,c,d) = ad - bc$.
What is the value of $\otimes(\otimes(0,1,2,3), \otimes(3,2,1,0), \otimes(1,2,3,4), 5)$?

_____ 7

8. $ABCD$ is a 4-sided polygon (not drawn to scale). The lengths of its two diagonals are integers and they add up to 75 units.
The diagonals are perpendicular to each other.
The area of the polygon is 427 square units.
What is the size of the larger of the diagonals ?

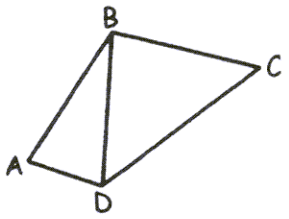


_____(units) 8

Grade Seven (7) Division

9. The math teacher went to the store and bought 25 binders for her students at a cost of $2.60 per binder. She handed $100 to the cashier. How many dollars did she receive as change ?

_____($) 9



10. $ABCD$ is a 4-sided polygon. Given that $AB = BC$, $\angle ABD = 30°$, $\angle DBC = 80°$, and $\angle BCD = 50°$, what is the number of degrees in the measure of $\angle DAB$?

_____(°) 10

11. How many prime number between 0 and 120 have a unit's digit of 7 ?

_____ 11

12. A man has 3 pennies, 3 nickels, 1 dime, and 2 quarters. How many different SUMS of money can he make using one or more of these 9 coins ?

_____(sums) 12