CML

P 6-3

NAME _____

PYTHAGOREAN DIVISION *MEET 3* *JANUARY 8, 2015* *GRADE 6*

30 MINUTES

ANSWER COLUMN

Directions: Place your answer to each question below in the answer column.

1) The sum of two numbers is 14. One of the numbers is 9. Find the product of the two numbers. 1) _____

2) $a @ b = \frac{a+b}{a \times b}$ and $a \# b = \frac{a \times b}{a+b}$. If $a \# b = 7\frac{2}{3}$, then, in simplest form, $a @ b =$ _____. 2) _____

3) The figure at the right has 4 rectangles (A, B, C, D) with whole number values for lengths and widths. The areas for A, B and C, in sq. units, are given in the diagram. The area of rectangle D is _____ sq. units. 3) _____

A 55	B 15
D	C 30

4) There are two sets of 3 single-digit numbers (not necessarily all different) that multiply to 72 and add to 14. One set of 3 numbers is 6, 6, 2. (6 × 6 × 2 = 72 and (6 + 6 + 2 = 14.) The other set of 3 numbers is __, __, __ 4) _____

5) Carlos is riding his bike on the road from Jonesville to Smithtown. He travels out and back to Jonesville at 10 m.p.h. for 3½ hours. The closest he got to Smithtown was 25 miles away. The distance from Jonesville to Smithtown on that road is _____ miles. 5) _____

6) Using 5¢ stamps and 9¢ stamps, 23¢ of postage can be attained by using two 9¢ stamps and a 5¢ stamp (18 + 5 = 23). Thirty-six ¢ of postage can be attained by four 9¢ stamps. What is the largest value of postage that cannot be attained by using 5¢ and 9¢ stamps? (The value is more than 20¢ but less than 50¢.) 6) _____

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The answer to each question is in parentheses at the beginning of each solution.

1) (45) $14 - 9 = 5$. $9 \times 5 = 45$.

2) ($\frac{3}{23}$) $a \,@\, b$ is the reciprocal of $a \,\#\, b$. Since $a \,\#\, b = 7\frac{2}{3} = \frac{23}{3}$, $a \,@\, b = \frac{3}{23}$.

3) (110) While 15 (rectangle B) shares a factor of 5 with both rectangle A and rectangle C, it does not share a factor of 3 with rectangle A, thus, A is 5×11, B is 5×3, C is 3×10 and D is 10×11. $10 \times 11 = 110$ sq. units. (Even if B is 1×15, then A is 1×55 = 55, C is 15×2 = 30 and D is 55×2 = 110.)

A			B
	55	5	15
D	11		C 3
	110	10	30

4) (8, 3, 3) When 72 is written in terms of its prime factors ($2 \times 2 \times 2 \times 3 \times 3$), both $6 \times 6 \times 2$ and $8 \times 3 \times 3$ can be determined. $8 \times 3 \times 3 = 72$ and $8 + 3 + 3 = 14$.

5) (42 ½) He traveled a total of 35 miles (3 ½ hours at 10 m.p.h.). He traveled 17½ miles out and 17½ miles back. At 17½ miles out he was still 25 miles from Smithtown. 17½ + 25 = 42½ miles.

6) (31¢) Thirty cents can be attained (six 5¢ stamps). 31¢ cannot be attained. 32¢ by three 9¢ + one 5¢ (27 + 5 = 32). 33¢ by two 9¢ + three 5¢ (18 + 15 = 33). 34¢ by one 9¢ and five 5¢ (9 + 25 = 34). 35¢ by using seven 5¢. 36¢ by using four 9¢. Once 5 values in a row can be attained (32 - 36), then the next 5 values can be attained by adding a 5¢ stamp. All values over 31¢ can be attained. The largest value unattainable is 31¢.