Metrobank-MTAP-DepEd Math Challenge 2015-2016
Grade 7

Name: _____ School: _____ Score: _____

Instruction: Write your answer on the space provided before each item. Give all fractions in lowest terms and all expressions in expanded form.

_____ **1.** Simplify: $6(2)^2 - (4-5)^3$

_____ **2.** By how much is $3 - \frac{1}{3}$ greater than $\frac{1}{2} - 2$?

_____ **3.** Write $\frac{11}{250000}$ in scientific notation.

_____ **4.** The product of two prime numbers is 302. What is the sum of the two numbers?

_____ **5.** A shirt is marked ₱315 after a discount of 10% and value added tax of 12%. What was the price of the shirt before tax and the discount?

_____ **6.** How many different lengths of diagonals does a regular octagon have?

_____ **7.** What number is midway between $3 + \frac{1}{3}$ and $2 - \frac{1}{3}$?

_____ **8.** Simplify: $(2-5) \times \left(-\frac{9}{8}\right) - \frac{3}{4}(-2)$.

_____ **9.** Simplify: $\left(\frac{7}{2} + \frac{5}{6}\right)^2 - \left(\frac{7}{2} - \frac{5}{6}\right)^2$.

_____ **10.** The sum of the measures of the interior angles of a polygon is 1980°. How many sides has the polygon?

_____ **11.** The average of three numbers is 20. Two numbers are added to the set and the average of the five numbers becomes 42. If one of the added numbers is twice the other, what are the two numbers added to the data set?

_____ **12.** Compute: $24 \div \frac{1+\frac{1}{5}}{2-\frac{1}{3}}$.

_____ **13.** Subtract $5a - 2b + c$ from the sum of $3a + b - 2c$ and $a - b + 3c$.

_____ **14.** Alex, Beth and Carla play a game in which the losing player in each round gives each of the other players as much money as the player has at that time. In Round 1, Alex loses and gives Beth and Carla as much money as they each have. In Round 2, Beth loses and in Round 3, Carla loses. After 3 rounds, they find that they each have ₱40. How much money did Alex have at the start of the game?

_____ **15.** Three two-digit numbers have consecutive tens digits and have units digit all equal to 5. If the tens digit of the smallest number is n, what is the sum of three numbers?

_____ **16.** The length of a rectangle is 8 cm more than its width. If the length is decreased by 9 and the width is tripled, the area is increased by 50%. What was the area of the original rectangle?

_____ **17.** Evaluate: $236 \times 542 + 458 \times 764 + 542 \times 764 + 236 \times 458$.

_____ **18.** TRUE OR FALSE: If n is a real number, then n^2 is positive.

_____ **19.** If n kilos of rice costs p pesos, how much will x kilos of rice cost?

_____ **20.** If the letters of the word MATHEMATICS are repeatedly and consecutively written, what is the 2016^{th} letter?

_____ **21.** Simplify: $\frac{(x-\sqrt{2})(x+\sqrt{2})}{x^3 - 2x}$

_____ **22.** If x is three times as far from -5 as it is from 15, what are the possible values of x?

_____ **23.** If three children eat 4 kilos of rice in 5 days, how long will 12 children eat 48 kilos of rice?

_____ **24.** A conical tank full of water is emptied into an empty cylindrical tank of the same height. If the base radius of the cylinder is twice that of the cone, what fraction of the cylinder will be filled with water?