Exponents and Exponential Functions
MCAS Worksheet 1

Name _____

1 What is the value of the expression below?

$$\left(\sqrt[3]{125}\right)^3$$

A. 5

B. 25

C. 75

D. 125

Mark your answer here: 1. Ⓐ Ⓑ Ⓒ Ⓓ

2 A fast-growing strain of bacteria doubles in population every 20 minutes. A laboratory has a culture of 200 of these bacteria cells. The function below can be used to find p, the number of bacteria cells in this culture after t **hours.**

$$p = 200(8^t)$$

Which of the following is closest to the total number of bacteria cells after 2 hours?

A. 3,200

B. 12,800

C. 51,200

D. 2,560,000

Mark your answer here: 2. Ⓐ Ⓑ Ⓒ Ⓓ

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3 The student population in the Greenville school system is increasing about 10% each year. This year there are 3120 students in the Greenville school system. If this trend continues, which of the following is closest to the number of students who will be in this school system 3 years from now?

A. 3400

B. 4000

C. 4200

D. 9400

Mark your answer here: 3. Ⓐ Ⓑ Ⓒ Ⓓ

4 Which of the following expressions has a value of 64?

A. $\left(\sqrt[3]{64}\right)^2$

B. $\left(\sqrt[3]{64}\right)^3$

C. $\left(\sqrt[3]{64}\right) \div 3$

D. $\left(\sqrt[3]{64}\right) \cdot 3$

Mark your answer here: 4. Ⓐ Ⓑ Ⓒ Ⓓ

5 When Mr. Lee purchased his car, it had a value of $15,000. In each of the first 2 years after he purchased it, its value decreased by 10% of the previous year's value, as shown in the table below.

Mark your answer here: 5. Ⓐ Ⓑ Ⓒ Ⓓ

Decrease in Value of Mr. Lee's Car

Number of Years After Purchase	Value of Car
0	$15,000
1	$13,500
2	$12,150
3	?

If the value of Mr. Lee's car continues to decrease each year by 10% of the previous year's value, what will be the value of his car 3 years after he purchased it?

A. $1,215
B. $4,500
C. $10,500
D. $10,935

6 For what value of n is the equation below true?

$$5^4 \cdot n = 5^7$$

Write your answer here: