

Student Name: _____

Grade: _____

Date: _____

Subject: Mathematics Subject Teacher: Abdulkader Amro

Choose the one correct answer for each question.

1. There are about 3×10^{11} stars in our galaxy and about 100 billion galaxies in the observable universe. Suppose every galaxy has as many stars as ours. How many stars are in the observable universe? Write in scientific notation.

- A. 3×10^{22}
- B. 3×10^{33}
- C. 3×10^{21}
- D. 3×10^{12}

2. Humpback whales are known to weigh as much as 80,000 pounds. The tiny krill they eat weigh only 2.1875×10^{-3} pound. About how many times greater is the weight of a humpback whale?

- A. 3.66×10^5
- B. 3.66×10^7
- C. 3.66×10^8
- D. 3.66×10^4

3. Evaluate. Express the result in scientific notation: $(1.28 \times 10^5) + (1.13 \times 10^3)$

- A. 1.2913×10^8
- B. 2.41×10^5
- C. 1.2913×10^5
- D. 1.2913×10^3

4. Evaluate. Express the result in scientific notation: $(7.26 \times 10^6) - (1.3 \times 10^4)$

- A. 7.247×10^6
- B. 7.247×10^5
- C. 7.26×10^6
- D. 6.247×10^6

5. The speed of light is about 1.86×10^5 miles per second. The star Sirius is about 5.062×10^{13} miles from Earth. About how many seconds does it take light to travel from Sirius to Earth? Write in scientific notation, rounded to the nearest hundredth.

- A. 2.72×10^6
- B. 3.72×10^7
- C. 2.72×10^8
- D. 2.72×10^7

6. The table shows the amount of money raised by each region. The four regions raised a total of $\$5.38 \times 10^4$. East raised 1.46×10^4 , North raised 2.38×10^4 , and South raised 6.75×10^3 . How much did the West region raise?

Region	Amount Raised (\$)
East	1.46×10^4
North	2.38×10^4
South	6.75×10^3
West	

- A. 8.65×10^3
- B. 8.65×10^4
- C. 9.65×10^3
- D. 7.85×10^3

7. A bacterium was found to have a mass of 2×10^{-12} gram. After 30 hours, one bacterium was replaced by a population of 480,000,000 bacteria. What is the mass of the population of bacteria? Write your answer in scientific notation.

- A. 9.6×10^{-5} gram
- B. 4.8×10^{-4} gram
- C. 9.6×10^{-4} gram
- D. 9.6×10^{-3} gram

8. At the beginning of the business day, a bank's vault held \$575,900. By the end of the day, $(\$3.5 \times 10^3)$ had been added to the vault. How much money did the bank's vault hold at the end of the business day? Write your answer in standard form.

- A. \$579,000
- B. \$579,400
- C. \$578,400
- D. \$579,900

9. Which statement correctly explains how the Product of Powers and Quotient of Powers Properties help you multiply and divide numbers in scientific notation?

- A.** When multiplying, multiply the powers of 10 and subtract the exponents; when dividing, divide the powers of 10 and add the exponents.
- B.** When multiplying, add the coefficients and multiply the exponents; when dividing, subtract the coefficients and divide the exponents.
- C.** When multiplying, multiply the coefficients and add the exponents; when dividing, divide the coefficients and subtract the exponents.
- D.** When multiplying or dividing, always keep the exponents unchanged.

10. An Olympic-sized swimming pool holds 6.6043×10^5 gallons of water. A standard garden hose can deliver 9 gallons of water per minute. If the garden hose was filling the pool 24 hours per day, about how many days would it take to fill the pool?

- A.** 5.096 days
- B.** 50.96 days
- C.** 509.6 days
- D.** 60.96 days

11. Find the error. Miguel found the quotient of $\frac{5.78 \times 10^5}{0.00002}$ as 0.289. Find his mistake and the correct answer.

- A.** 2.89×10^9
- B.** 2.89×10^{10}
- C.** 2.89×10^{11}
- D.** 2.89×10^{-10}

12. A googol is the number 1 followed by 100 zeros. Earth's mass is 5.972×10^{24} kilograms. How many Earths are needed to have a total mass of 1 googol kilograms?

- A.** 1.674×10^{75} Earths
- B.** 1.674×10^{76} Earths
- C.** 5.972×10^{75} Earths
- D.** 1.674×10^{24} Earths