WINTER BRAIN BUILDER MATH BOOT CAMP

8TH GRADE

8.EE.1.1, 8.EE.1.4, 8.EE.3.7, 8.EE.3.8
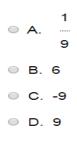
Due: January 8th

1.

Which of the following expressions are equivalent to each other? Select all that apply.

- A. $\frac{1}{49}$

- B. $\frac{1}{7^2}$

- C. $7^4 \times 7^{-6}$

- D. 7^2

- E. 7^{-2}

2.

Which of the following is equal to 3^{-2} ?

- A. $\frac{1}{9}$

- B. 6

- C. -9

- D. 9

3.

Which of the following is a solution for the equation $x^3 = 216$?

- A. 3
- B. 4
- C. 5
- D. 6
- E. None of the above

4.

The population of California is approximately 3.7×10^7 people. The land area of California is approximately 1.6×10^5 square miles. Divide the population by the area to find the best estimate of the number of people per square mile in California.

- A. 24 people

- B. 240 people

- C. 2,400 people

- D. 24,000 people

5.

Mercury is approximately 6×10^7 kilometers from the Sun. The speed of light is approximately 3×10^5 kilometers per second. Divide the distance by the speed of light to determine the approximate number of seconds it takes light to travel from the Sun to Mercury.

○ A. 2 seconds

○ B. 20 seconds

○ C. 200 seconds

○ D. 2,000 seconds

6.

Simplify $(4 \times 10^6) \times (2 \times 10^3)$ and express the result in scientific notation.

○ A. 8×10^9

○ B. 8×10^{18}

○ C. 6×10^9

○ D. 6×10^{18}

7.

Write and solve the linear equation to answer the following question.

If 3 pairs of pants cost $63, then what is the cost of 16 pairs of pants?

(Let c represent the cost of one pair of pants.)

○ A. c = (63/3); total cost = $336

○ B. c = 16(3); total cost = $368

○ C. c = (63/3) + 16; total cost = $287

○ D. None of the above.

8.

Solve the following linear equation: $\frac{7}{14} = n + \frac{7}{14}n$

○ A. $n = 1\frac{1}{2}$

○ B. $n = 3$

○ C. $n = \frac{1}{3}$

○ D. $n = 1$

9.

Jorge and Jillian have cell phones with different service providers. Jorge pays $50 a month and $1 per text message sent. Jillian pays $72 a month and $0.12 per text message sent. How many texts would each of them have to send in order for their bill to be the same amount at the end of the month?

○ A. 2 texts

○ B. 22 texts

○ C. 25 texts

○ D. 47 texts

10.

Janet has packed a total of 50 textbooks and workbooks in a box, but she can't remember how many of each are in the box. Each textbook weighs 2 pounds, and each workbook weighs 0.5 pounds, and the total weight of the books in the box is 55 pounds. If t is the number of textbooks and w is the number of workbooks, which of the following systems of equations represents this situation?

○ A. $t + w = 55$
$2t + 0.5w = 50$

○ B. $2t + w = 50$
$t + 0.5w = 55$

○ C. $t + w = 50$
$2t + 0.5w = 55$

○ D. $t + w = 55$
$2.5(t + w) = 50$