Unit 2 Pre-Test

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1 | **CCSS-MATH 8 EE.1**

Which of these equations is correct? Select all that apply.

A $2^{-2} \times 2^8 = 64$

B $3^{-5} \times 3^1 = \dfrac{1}{81}$

C $4^4 \times 4^{-3} = 4$

D $5^3 \times 5^{-1} = \dfrac{1}{125}$

E $6^{-8} \times 6^6 = 36$

F $8^2 \times 8^{-4} = \dfrac{1}{16}$

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2 | **CCSS-MATH 8 EE.1** | CA-MATH 7 NS 2.3

$(3^6)^3 =$

A 3^2

B 3^3

C 3^9

D 3^{18}

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3 | **CCSS-MATH 8 EE.1** | CA-MATH 7 NS 2.3

What is the value of $\dfrac{6^7 \cdot 4^4 \cdot 2}{6^5 \cdot 4^4 \cdot 2^2}$**?**

A $\dfrac{1}{18}$

B $\dfrac{4}{2}$

C $\dfrac{36}{4}$

D 18

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4 CCSS-MATH 8 EE.1 | CA-MATH A1 A1 2.0

Which expression is equivalent to $(5x^2y)^3$?

A $\quad 5x^2y^3$

B $\quad 15x^6y^3$

C $\quad 125x^5y^3$

D $\quad 125x^6y^3$

5 CCSS-MATH 8 EE.1 | CA-MATH A1 A1 2.0

$$(12x^3y^4)(5x^6y^3)=$$

A $\quad 17x^9y^7$

B $\quad 17x^{18}y^{12}$

C $\quad 60x^9y^7$

D $\quad 60x^{18}y^{12}$

6 CCSS-MATH 8 EE.3

A builder uses approximately 5×10^5 pieces of lumber to build four walls of a square shed. The builder then wants to build another shed that is 4 times larger.

Estimate the approximate amount of lumber the builder would need in order to build the larger shed. Express your answer in the form of a single digit times an integer power of 10.

7   **CCSS-MATH 8 EE.3**

The estimated number of chickens in the world is 19×10^9. The estimated number of cows in the world is 1.5×10^9.

The estimated amount of chickens in the world is about how many times greater than the estimated amount of cows?

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8   **CCSS-MATH 8 EE.3**

Seafloor spreading occurs at a rate of about one–billionth of a meter per second. Which of these represents the approximate rate at which seafloor spreading occurs?

A 1×10^{-12} meters per second

B 1×10^{-11} meters per second

C 1×10^{-9} meters per second

D 1×10^{-8} meters per second

9   **CCSS-MATH 8 EE.3**

The mass of a proton is about 1.7×10^{-27} kg, while the mass of an electron is about 9.1×10^{-31} kg. Based on this information, which of these statements *best* describes the relationship between the two masses?

A   The mass of an electron is about 2000 times larger than that of a proton.

B   The mass of a proton is about 2000 times larger than that of an electron.

C   The mass of an electron is about 50,000 times larger than that of a proton.

D   The mass of a proton is about 50,000 times larger than that of an electron.

10 CCSS-MATH 8 EE.3

Which of these pairs of distances is 5 times the other distance? Select *all* that apply.

A   a distance of 2×10^3 km and a distance of 2×10^{15} km

B   a distance of 2×10^4 km and a distance of 2×10^9 km

C   a distance of 2×10^7 km and a distance of 4×10^8 km

D   a distance of 4×10^{13} km and a distance of 2×10^{14} km

E   a distance of 8×10^5 km and a distance of 4×10^6 km

F   a distance of 8×10^{16} km and a distance of 8×10^{17} km

11 CCSS-MATH 8 EE.4

The speed of light is approximately 3.0×10^8 meters per second. The speed of sound is approximately 3.4×10^2 meters per second.

Part A:
What is the difference between the speed of light and the speed of sound?

Part B:
How many times faster is the speed of light than the speed of sound?

CCSS-MATH 8 EE.4

Which of these equations is correct? Select *all* that apply.

A $69{,}000{,}000 - (2.7 \times 10^6) = 42{,}000{,}000$

B $(7.4 \times 10^7) - 3{,}100{,}000 = 70{,}900{,}000$

C $750{,}000{,}000 - (3.2 \times 10^7) = 718{,}000{,}000$

D $(6.6 \times 10^6) - 150{,}000 = 64{,}500{,}000$

E $8{,}800{,}000{,}000 - (5.6 \times 10^8) = 8{,}240{,}000{,}000$

F $(4.9 \times 10^8) - 3{,}500{,}000{,}000 = 1{,}400{,}000{,}000$

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13   **CCSS-MATH 8 EE.4** | CA-MATH 7 NS 1.1

Write 330,000 in scientific notation.

A 33×10^5

B 3.3×10^5

C 33×10^4

D 3.3×10^4

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14   **CCSS-MATH 8 EE.4** | CA-MATH 7 NS 1.1
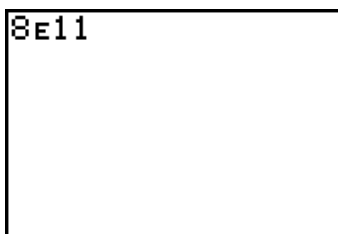
Express 3.2×10^{-8} in standard form.

A   .0000000032

B   .000000032

C   320,000,000

D   3,200,000,000

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15   **CCSS-MATH 8 EE.4**

Roberto entered a number into his graphing calculator as shown below. Which of these is equal to the number? Select all that apply.

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8E11
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A 8^{11}

B 8×10^{11}

C   80,000,000,000

16 **CCSS-MATH 8 NS.1**

Which of the following numbers are rational? Select three that apply.

A $\quad \sqrt{5}$

B $\quad \dfrac{7}{3}$

C $\quad \sqrt{17}$

D $\quad \sqrt{64}$

E $\quad \dfrac{72}{8}$

17 **CCSS-MATH 8 NS.2**

Which of the following numbers is to the right of 6 on a number line? Select all that apply.

A $\quad \sqrt{2}$

B $\quad \sqrt{7}$

C $\quad -\sqrt{23}$

D $\quad \sqrt{47}$

E $\quad -\sqrt{79}$

F $\quad \sqrt{91}$