

# Day 3~ Scientific Notation HW

Student *Key*

Date

1. What is the value of the expression  $(3^3)(2^4)(3^{-4})(2^{-3})$ ?

A.  $-6$

B.  $-3$

C.  $\frac{1}{6}$

D.  $\frac{2}{3}$

$(3^3)(3^{-4})(2^4)(2^{-3})$   
 $3^{3-4} 2^{4-3}$   
 $3^{-1} 2^1$   
 $\frac{2^1}{3^1}$

2. The volume of a cube is  $125 \text{ cm}^3$ . What is the length of each side of the cube?

A. 5 cm

B. 11.18 cm

C. 25 cm

D. 31.25 cm

$V = l^3$   
 $125 = l^3$   
 $\sqrt[3]{125} = \sqrt[3]{l^3}$   
 $5 = l$

3. How is  $3.25 \times 10^6$  written in standard form?

A. 3,250,000

B. 32,500,000

C. 325,000,000

$3,250,000$

4. The diameter of a grain of sand is 0.06534 millimeter. Which value is the best estimate of this diameter?

A.  $6 \times 10^{-3}$  millimeter

B.  $7 \times 10^{-3}$  millimeter

C.  $6 \times 10^{-2}$  millimeter

D.  $7 \times 10^{-2}$  millimeter

$0.06534$   
 $\uparrow$   
 $\frac{6.534}{7} \times 10^{-2}$   
 Closer to 7

5. The masses of three planets are shown in the table below.

Planet	Mass (kg)
Venus	$4.87 \times 10^{24}$
Earth	$5.98 \times 10^{24}$
Mars	$6.42 \times 10^{23}$

Same exponent so compare numbers - 5.98 is greater  
 ← Lowest exponent, so lowest number

Which shows the planets ordered from greatest to least mass?

A. Earth, Venus, Mars

B. Venus, Earth, Mars

C. Mars, Earth, Venus

D. Mars, Venus, Earth

6. Which is equivalent to  $(2.0 \times 10^3)(2.0 \times 10^4)$ ?

A.  $2.0 \times 10^7$

B.  $4.0 \times 10^7$

C.  $2.0 \times 10^{12}$

D.  $4.0 \times 10^{12}$

$(2.0 \times 2.0)(10^3 \times 10^4)$   
 $4 \times 10^{3+4}$   
 $4 \times 10^7$

7. Which value is equivalent to  $2.4 \times 10^4 - 1.7 \times 10^2$ ?

A. 238,300

B. 23,830

C. 2230

D. 70

$2.4 \times 10^4 - 1.7 \times 10^2$   
 $24000 - 170$   
 $= 23,830$

8. What is the value of  $\frac{3.0 \times 10^5}{1.5 \times 10^{-2}}$ ?

- A. 2,000
- B. 4,500
- C. 15,000,000
- D. 20,000,000**

$$\frac{3.0}{1.5} \times 10^{5-(-2)}$$

$$2 \times 10^{5+2}$$

$$2 \times 10^7$$

20,000,000

9. Which of these equations does NOT have any solutions?

- A.  $10 - 3x - 1 = 7 + 3x + 2$
- B.  $12 - 7x - 10 = x - 8x + 2$
- C.  $13 - 4x + 2 = 3x - 7x + 2$**
- D.  $15 - 2x - 2 = 10x + 3x + 2$

10. What is the solution to  $5(x + 1) - 8 = x - 4(2x - 1)$ ?

- A. 1
- B.  $\frac{7}{12}$**
- C.  $\frac{1}{2}$
- D. -1

$$5(x+1) - 8 = x - 4(2x-1)$$

$$5x + 5 - 8 = x - 8x + 4$$

$$5x - 3 = -7x + 4$$

$$5x - 3 + 7x = -7x + 4 + 7x$$

$$12x - 3 = 4$$

$$12x - 3 + 3 = 4 + 3$$

$$12x = 7$$

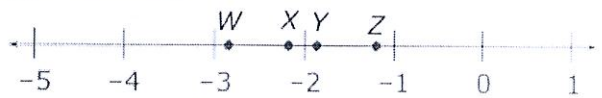
$$\frac{12x}{12} = \frac{7}{12}$$

$$x = \frac{7}{12}$$

11. Which of these is a rational number?

- irrational* A.  $\sqrt{254}$
- irrational* B.  $\frac{\sqrt{125}}{5}$
- C.  $-\frac{\sqrt{4}}{2} = -\frac{2}{2} = -1$**
- irrational* D.  $-\sqrt{3}$

12. Which letter is located at approximately  $-\sqrt{5}$ ?



- A. W
  - B. X**
  - C. Y
  - D. Z
- $-\sqrt{9} < -\sqrt{5} < -\sqrt{4}$   
 $-\sqrt{5}$  is between -2 and -3, but closer to -2

**9**  $10 - 3x - 1 = 7 + 3x + 2$

$$-3x + 9 = 3x + 9$$

$$-3x + 9 - 3x = 3x + 9 - 3x$$

$$-6x + 9 = 9$$

$$-6x + 9 - 9 = 9 - 9$$

$$-6x = 0$$

$$\frac{-6x}{-6} = \frac{0}{-6}$$

$$x = 0 \leftarrow \text{One Solution}$$

**12**  $12 - 7x - 10 = x - 8x + 2$

$$2 - 7x = -7x + 2$$

$$2 - 7x = 2 - 7x \leftarrow \text{Same Equation Infinitely many solutions}$$

**13**  $13 - 4x + 2 = 3x - 7x + 2$

$$15 - 4x = -4x + 2$$

$$15 - 4x + 4x = -4x + 2 + 4x$$

$$15 \neq 2$$

No Solutions

**15**  $15 - 2x - 2 = 10x + 3x + 2$

$$13 - 2x = 13x + 2$$

$$13 - 2x - 13x = 13x + 2 - 13x$$

$$13 - 15x = 2$$

$$13 - 15x - 13 = 2 - 13$$

One Solution

$$-15x = -11$$

$$\frac{-15x}{-15} = \frac{-11}{-15}$$

$$1x = \frac{11}{15}$$