

Name _____

Mrs. Roubos

Date _____

8R Period _____

Scientific Notation Test Review

For 1-6 Simplify

1) 10^{-4}

2) $(-4)^{-2}$

3) 2^0

4) 2^{-3}

5) -3^2

6) $(-3)^2$

For 7-12, simplify. Write your answer in exponential form.

7) $(3)^2 \times (3)^3$

8) $\frac{2^3}{2^5}$

9) $(4^3)^5$

10) $5^5 \bullet 5^6$

11) $3^7 \div 3^{-4}$

12) $(2^4)^5$

For 13-18, write each answer in scientific notation.

13) 445,000,000

14) 0.00563

15) 22.5×10^4

16) $.0045 \times 10^6$

17) .006

18) 325×10^7

For 19-20, write each answer in standard form

19) 4.5×10^5

20) 3.76×10^{-4}

21) Which of the following is not equivalent to 8^{-2} ?

a) $8^4 \cdot 8^{-6}$

b) $8^{-1} \cdot 8^{-1}$

c) $8^{-6} \cdot 8^8$

d) $8^2 \cdot 8^{-4}$

22) Evaluate:

$45 - (12-10)^4$

For 23-26 Solve the following. Leave your answer in Scientific Notation

23) What is the quotient of $(6.72 \times 10^9) \div (3.2 \times 10^2)$?

24) What is the product of $(1.7 \times 10^9) \cdot (1.4 \times 10^2)$?

25) $(8.42 \times 10^3) - (6.5 \times 10^3)$

26) $(7.32 \times 10^{-3}) + (4.6 \times 10^{-6})$

27) In 2010, the population of Sweden was about 9.413×10^6 . The population of Switzerland was about 7.783×10^6 . About how much more was the population of Sweden than Switzerland? Write your answer in scientific notation.

28) The land area of Connecticut is about 4.8×10^3 square miles. The land area of New Mexico is about 1.2×10^5 square miles. About how many times greater is the land area of New Mexico than the land area of Connecticut?

29) In 2011 the population of England was about 6.32×10^7 . The population of France was about 8.53×10^5 . What was their total combined population?

Compare the following

30) 7.8×10^{-7} _____ 7.8×10^{-8}

31) 4.5×10^2 _____ 2×10^2

32) 3.2×10^{-10} _____ 3.2×10^{10}

33) 3.5×10^3 _____ 5.6×10^6

For # 34 & #35 place the numbers in order from least to greatest

34) 2.65×10^{-3} , 6.7×10^{-5} , 4.25×10^6

35) 6.3×10^3 , 2.5×10^3 , 8.6×10^3

36) 1.38×10^7 is how many times greater than 4.6×10^4 ? 3/30/300/3000 times?

37) 1.134×10^2 is how many times greater than 5.67×10^3 ? 2/20/.02/.20 times?

Scientific Notation Test Review

For 1-6 Simplify

2nd PRB to make a fraction

1) $10^{-4} = \frac{1}{10^4} = \frac{1}{10,000}$

2) $(-4)^{-2} = \frac{1}{(-4)^2} = \frac{1}{16}$

3) $2^0 = 1$ anything to the power of 0 is 1.

4) $2^{-3} = \frac{1}{2^3} = \frac{1}{8}$

5) $-3^2 = (-9)$
 $\rightarrow -(3 \cdot 3)$

6) $(-3)^2 = (-3)(-3) = 9$

For 7-12, simplify. Write your answer in exponential form.

* Add exponents

7) $(3)^2 \times (3)^3 = (3)^{2+3} = (3)^5$

* Subtract exponents

8) $\frac{2^3}{2^5} = 2^{3-5} = 2^{-2} = \frac{1}{2^2} = \frac{1}{4}$

* multiply exponents

9) $(4^3)^5 = 4^{3 \cdot 5} = 4^{15}$

* Add

10) $5^5 \cdot 5^6 = 5^{5+6} = 5^{11}$

* Subtract

11) $3^7 \div 3^4 = 3^{7-4} = 3^3$

multiply

12) $(2^4)^5 = 2^{4 \cdot 5} = 2^{20}$

For 13-18, write each answer in scientific notation.

2nd DRG > SCI =

13) 445,000,000

4.45×10^8

14) 0.00563

5.63×10^{-3}

15) 22.5×10^4

2.25×10^5

* The coefficient must be ≥ 1 and < 10

16) $.0045 \times 10^6$

4.5×10^3

17) .006

6×10^{-3}

18) 325×10^7

3.25×10^9

For 19-20, write each answer in standard form

2nd DRG < FLO =

19) 4.5×10^5

450,000

20) 3.76×10^{-4}

0.000376

21) Which of the following is not equivalent to 8^{-2} ?

* Add the exponents

✓ a) $8^4 \cdot 8^{-6} = 8^{4+(-6)} = 8^{-2}$

✓ b) $8^{-1} \cdot 8^{-1} = 8^{-1+(-1)} = 8^{-2}$

c) $8^{-6} \cdot 8^8 = 8^{-6+8} = 8^2$

d) $8^2 \cdot 8^{-4} = 8^{2+(-4)} = 8^{-2}$

22) Evaluate:

$45 - (12-10)^4$

$45 - (2)^4$

$45 - 16$

29

D
E
M/D
→
A/S
→

For 23-26 Solve the following. Leave your answer in Scientific Notation

23) What is the quotient of $(6.72 \times 10^9) \div (3.2 \times 10^2)$?

$$2.1 \times 10^7$$

24) What is the product of $(1.7 \times 10^9) \cdot (1.4 \times 10^2)$?

$$2.38 \times 10^{11}$$

25) $(8.42 \times 10^3) - (6.5 \times 10^3)$

$$1.92 \times 10^3$$

26) $(7.32 \times 10^{-3}) + (4.6 \times 10^{-6})$

$$7.3246 \times 10^{-3}$$

* SCZ mode

* make sure to use ()

when plugging into the calculator!

27) In 2010, the population of Sweden was about 9.413×10^6 . The population of Switzerland was about 7.783×10^6 . About how much more was the population of Sweden than Switzerland? Write your answer in scientific notation.
 subtract 1st 2nd SCZ mode

$$(9.413 \times 10^6) - (7.783 \times 10^6) = 1.63 \times 10^6$$

* must show work

* must use ()

* watch the order

must be Sweden 1st

and Switzerland 2nd

28) The land area of Connecticut is about 4.8×10^3 square miles. The land area of New Mexico is about 1.2×10^5 square miles. About how many times greater is the land area of New Mexico than the land area of Connecticut?
2nd divide 1st SCZ mode

$$(1.2 \times 10^5) \div (4.8 \times 10^3) = 2.5 \times 10^1$$

* must show work

* must use ()

* watch the order

must be New Mexico 1st

and Connecticut 2nd

29) In 2011 the population of England was about 6.32×10^7 . The population of France was about 8.53×10^5 . What was their total combined population?

Add $(6.32 \times 10^7) + (8.53 \times 10^5)$

SLT

6.4053×10^7

* must use parentheses
* (SLT) must show work

Compare the following

30) $7.8 \times 10^{-7} > 7.8 \times 10^{-8}$

$-7 > -8$

31) $4.5 \times 10^2 > 2 \times 10^2$

$4.5 > 2$

32) $3.2 \times 10^{-10} < 3.2 \times 10^{-9}$

$-10 < -9$

33) $3.5 \times 10^3 < 5.6 \times 10^6$

$3 < 6$

Compare
1) Exponents/1st
2) Coefficients 2nd

For # 34 & #35 problem below, place the numbers in order from least to greatest

34) ~~2.65×10^{-3}~~ , ~~6.7×10^{-5}~~ , 4.25×10^6

↑ smallest ↓ largest

$6.7 \times 10^{-5}, 2.65 \times 10^{-3}, 4.25 \times 10^6$

35) ~~6.3×10^3~~ , ~~2.5×10^3~~ , 8.6×10^3

$2.5 \times 10^3, 6.3 \times 10^3, 8.6 \times 10^3$

36) 1.38×10^7 is how many times greater than 4.6×10^4 ? 3/30/300/3000 times?

(FLU) more

$(1.38 \times 10^7) \div (4.6 \times 10^4) = 300$

* must use parentheses

37) 1.134×10^2 is how many times greater than 5.67×10^3 ? 2/20/.02/.20 times?

$(1.134 \times 10^2) \div (5.67 \times 10^3) = .02$

in the calculator
* must show work!

