Comparing Numbers in Scientific Notation

First, compare the exponents.

If the exponents are different, the coefficients do not matter; they have a smaller effect.

Whichever number has the larger exponent is the larger number.

74 Comparing Numbers

Comparing Numbers in Scientific Notation

When the exponents are different, just compare the exponents.

<	=	>
9.99 x 10^3		2.17 x 10^4
1.02 x 10^2		8.54 x 10^{-3}
6.83 x 10^{-9}		3.93 x 10^{-2}

9,990 9,990.

21,700 21,700.

just drag the sign that is correct

Answer & Math Practice

MP6

Comparing Numbers in Scientific Notation

If the exponents are the same, compare the coefficients.

The larger the coefficient, the larger the number (if the exponents are the same).

76 Comparing Numbers

Comparing Numbers in Scientific Notation

When the exponents are the same, just compare the coefficients.

<	=	>
5.67 x 10^3		4.67 x 10^3
4.32 x 10^6		4.67 x 10^6
2.32 x 10^{10}		3.23 x 10^{10}

Answer

MP6

34 Which is ordered from least to greatest?

A	I, II, III, IV	I. 1.0 x 10^5
B	IV, III, I, II	II. 7.5 x 10^6
C	I, IV, II, III	III. 8.3 x 10^4
D	III, I, II, IV	IV. 5.4 x 10^7

Answer

https://njctl.org/video/?v=FP7ugvNpc2I

78 Response ?

35 Which is ordered from least to greatest?

A	I, II, III, IV	I. 1.0 x 10^2
B	IV, III, I, II	II. 7.5 x 10^6
C	I, IV, II, III	III. 8.3 x 10^9
D	I, II, IV, III	IV. 5.4 x 10^7

Answer

https://njctl.org/video/?v=h44TIlYHVI0

79 Response ?

36 Which is ordered from least to greatest?

A	I, II, III, IV	I. 1×10^{2}
B	IV, III, I, II	II. 7.5×10^{3}
C	III, IV, II, I	III. 8.3×10^{-2}
D	III, IV, I, II	IV. 5.4×10^{3}

Answer

https://njctl.org/video/?v=n8rgrbHz_V0

80 Response ?

37 Which is ordered from least to greatest?

A	II, III, I, IV	I. 1×10^{-2}
B	IV, III, I, II	II. 7.5×10^{-24}
C	III, IV, II, I	III. 8.3×10^{-15}
D	III, IV, I, II	IV. 5.4×10^{2}

Answer

https://njctl.org/video/?v=sBuLMVh5c3k

81 Response ?

38 Which is ordered from least to greatest?

A	I, II, III, IV	I. 1.0×10^{2}
B	IV, III, I, II	II. 7.5×10^{2}
C	I, IV, II, III	III. 8.3×10^{2}
D	III, IV, I, II	IV. 5.4×10^{2}

Answer

https://njctl.org/video/?v=FVz4h0AFKVE

82 Response ?

39 Which is ordered from least to greatest?

A	I, II, III, IV	I. 1.0×10^{6}
B	IV, III, I, II	II. 7.5×10^{6}
C	I, IV, II, III	III. 8.3×10^{6}
D	III, IV, I, II	IV. 5.4×10^{7}

Answer

https://njctl.org/video/?v=-WWLcsqoDuw

83 Response ?

40 Which is ordered from least to greatest?

A	I, II, III, IV	I. 1.0×10^{3}
B	IV, III, I, II	II. 5.0×10^{3}
C	I, IV, II, III	III. 8.3×10^{6}
D	III, IV, I, II	IV. 9.5×10^{6}

Answer

https://njctl.org/video/?v=tdZ3defKvfI

84 Response ?

41 Which is ordered from least to greatest?

A	I, II, III, IV	I. 2.5×10^{-3}
B	IV, III, I, II	II. 5.0×10^{-3}
C	I, IV, II, III	III. 9.2×10^{-6}
D	III, IV, I, II	IV. 4.2×10^{-6}

Answer

https://njctl.org/video/?v=J9D_JqpgzqY

85 Response ?

42 The chance of a shark bite is $\frac{1}{11,500,000}$ and the chance of a snake bite is $\frac{1}{50,000,000}$. Which are you more likely to be bit by?

A both are the same chance
B the snake
C the shark
D neither

Answer

https://njctl.org/video/?v=DGOm5-wLvLA

(Derived from engage^{ny})

71 Response ?

Multiplying Numbers in Scientific Notation

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86 Mult. & Dividing

Multiplying Numbers in Scientific Notation

Multiplying with scientific notation requires at least three (and sometimes four) steps.

1. Multiply the coefficients
2. Multiply the powers of ten applying the rule of exponents
3. Combine those results
4. Put in proper form

https://njctl.org/video/?v=geS-AqyPUAo

86 Mult. & Dividing

Multiplying Numbers in Scientific Notation

Evaluate: $(6.0 \times 10^4)(2.5 \times 10^2)$

1.	Multiply the coefficients	$6.0 \times 2.5 = 15$
2.	Multiply the powers of ten applying the rule of exponents	$10^4 \times 10^2 = 10^6$
3.	Combine those results	15×10^6
4.	Put in proper form	1.5×10^7

Math Practice

MP8

Multiplying Numbers in Scientific Notation

Evaluate: $(4.80 \times 10^6)(9.0 \times 10^{-8})$

1. Multiply the coefficients — 43.2
2. Multiply the powers of ten applying the rule of exponents — $10^6 \cdot 10^{-8} = 10^{-2}$
3. Combine those results — 43.2×10^{-2}
4. Put in proper form — 4.32×10^{-1}

Answer

$$\begin{array}{r} 7 \\ 4.8 \\ \times\ \ 9 \\ \hline 43.2 \end{array}$$

43.2×10^{-2}

.432

4.32×10^{-1}

.432

88 Mult. & Dividing

43 Evaluate $(2.0 \times 10^{-4})(4.0 \times 10^7)$. Express the result in scientific notation.

A 8.0×10^{11}
B 8.0×10^3
C 5.0×10^3
D 5.0×10^{11}
E 7.68×10^{-28}
F 7.68×10^{-28}

Answer

https://njctl.org/video/?v=lDNCg-L-D6c

89 Response ?

44 Evaluate $(5.0 \times 10^{6})(7.0 \times 10^{7})$
Express the result in scientific notation.

A 3.5×10^{13}
B 3.5×10^{14}
C 3.5×10^{1}
D 3.5×10^{-1}
E 7.1×10^{13}
F 7.1×10^{1}

Answer

https://njctl.org/video/?v=DSdm_HeZhok

90 Response ?

45 Evaluate $(6.0 \times 10^{2})(2.0 \times 10^{3})$
Express the result in scientific notation.

A 1.2×10^{6}
B 1.2×10^{1}
C 1.2×10^{5}
D 3.0×10^{-1}
E 3.0×10^{5}
F 3.0×10^{1}

Answer

https://njctl.org/video/?v=JiWWgRUXB00

91 Response ?

46 Evaluate $(1.2 \times 10^{-6})(2.5 \times 10^{3})$.
Express the result in scientific notation.

A 3×10^{3}
B 3×10^{-3}
C 30×10^{-3}
D 0.3×10^{-18}
E 30×10^{18}

2.5 × 1.2 → 5, 250, 300 → 3×10^{-3}

Answer

https://njctl.org/video/?v=nfbFIBBKj1U

92 Response ?

47 Evaluate $(1.1 \times 10^{4})(3.4 \times 10^{6})$.
Express the result in scientific notation.

A 3.74×10^{24}
B 3.74×10^{10}
C 4.5×10^{24}
D 4.5×10^{10}
E 37.4×10^{24}

3.4 × 1.1 → 34, 340, 3.74

Answer

https://njctl.org/video/?v=gbxPnvkYs1Y

93 Response ?

48 Evaluate $(3.3 \times 10^{4})(9.6 \times 10^{3})$.
Express the result in scientific notation.

A ~~31.68×10^{7}~~
B 3.168×10^{8}
C 3.2×10^{7}
D ~~32×10^{8}~~
E ~~30×10^{7}~~

9.6 × 3.3 → 31.68×10^{7} → 3.168×10^{8}

31,680,000.
3,168,000.

Answer

https://njctl.org/video/?v=mJjiKlpFMTM

94 Response ?

49 Evaluate $(2.2 \times 10^{-5})(4.6 \times 10^{-4})$.
Express the result in scientific notation.

A 10.12×10^{-20}
B 10.12×10^{-9}
C 1.012×10^{-10}
D 1.012×10^{-9}
E 1.012×10^{-8}

Answer

https://njctl.org/video/?v=kbueTCnCdxg

95 Response ?

Dividing Numbers in Scientific Notation

Dividing with scientific notation follows the same basic rules as multiplying.

1. Divide the coefficients
2. Divide the powers of ten applying the rule of exponents
3. Combine those results
4. Put in proper form

https://njctl.org/video/?v=M8BEYW0trBA

96 It. & Dividing

Division with Scientific Notation

0.6
9|5.4

Evaluate: $\frac{5.4 \times 10^6}{9.0 \times 10^2}$

1. Divide the coefficients $5.4 \div 9.0 = 0.6$
2. Divide the powers of ten applying the rule of exponents $10^6 \div 10^2 = 10^4$
3. Combine those results 0.6×10^4
4. Put in proper form 6.0×10^3

Math Practice

MP8

Division with Scientific Notation

4
16|4.4

Evaluate: $\frac{4.4 \times 10^6}{1.1 \times 10^{-3}}$

1. Divide the coefficients 4
2. Divide the powers of ten applying the rule of exponents 10^9
3. Combine those results
4. Put in proper form 4×10^9

Answer

98 Mult. & Dividing

50 Evaluate: $\frac{4.16 \times 10^{-9}}{5.2 \times 10^{-5}}$ $-9+5$

Express the result in scientific notation.

A 0.8×10^{-4}
B 0.8×10^{-14}
C 0.8×10^{-5}
D 8×10^{-4}
E 8×10^{-5}

8×10^{-4}

https://njctl.org/video/?v=iLHXEbpeGgM

Answer

99 Response ?

Attachments

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