Answer Key

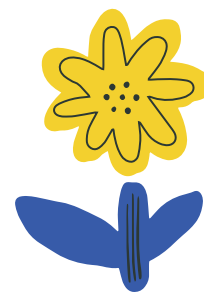## FIND THE ERROR:
Operations With Numbers in Scientific Notation

In each problem below, a student tried to complete an addition, subtraction, multiplication, or division problem with numbers in scientific notation but made an error. Circle the error in each student's work, explain what the error is, and show how to correctly perform the operation. Write your answers in scientific notation.

Lin

Circle the error:

$(7.6 \times 10^8) - (4 \times 10^8)$

$(7.6 - 4) \times 10^8$

$\boxed{7.2} \times 10^8$

Answer: 7.2×10^8

Show the correct work:

$(7.6 \times 10^8) - (4 \times 10^8)$

$(7.6 - 4) \times 10^8$

3.6×10^8

Answer: ___ 3.6×10^8

What error did Lin make? Lin made a subtraction error. When he subtracted 4 from 7.6, he subtracted 4 tenths instead of 4 wholes.

Isaac

Circle the error:

$(3.3 \times 10^4)(1.7 \times 10^5)$

$(3.3 \times 1.7)(10^4 \times 10^5)$

$5.61 \times \boxed{10^{20}}$

Answer: 5.61×10^{20}

Show the correct work:

$(3.3 \times 10^4)(1.7 \times 10^5)$

$(3.3 \times 1.7)(10^4 \times 10^5)$

5.61×10^9

Answer: ___ 5.61×10^9

What error did Isaac make? When Isaac multiplied the powers of ten, he multiplied the exponents instead of adding them.

Emily

Circle the error:

$(5.7 \times 10^6) + (2.9 \times 10^5)$

$[(5.7 \times 10) \times 10^5] + (2.9 \times 10^5)$

$\boxed{(5.7 \times 10^5)} + (2.9 \times 10^5)$

$(5.7 + 2.9) \times 10^5$

8.6×10^5

Answer: 8.6×10^5

Show the correct work:

$(5.7 \times 10^6) + (2.9 \times 10^5)$

$[(5.7 \times 10) \times 10^5] + (2.9 \times 10^5)$

$(57 \times 10^5) + (2.9 \times 10^5)$

$(57 + 2.9) \times 10^5$

59.9×10^5

5.99×10^6

Answer: ___ 5.99×10^6

What error did Emily make? When Emily rewrote 5.7×10^6 to have 10^5 as its power of ten, she did not multiply 5.7 by 10.

FIND THE ERROR:

Operations With Numbers in Scientific Notation

Keep going! Circle the error in each student's work, explain what the error is, and show how to correctly perform the operation. Write your answers in scientific notation.

Sanjay

Circle the error:

$(3.6 \times 10^9) \div (9 \times 10^3)$

$(3.6 \div 9) \times (10^9 \div 10^3)$

$0.4 \times \boxed{10^3}$

4×10^2

Answer: 4×10^2

Show the correct work:

$(3.6 \times 10^9) \div (9 \times 10^3)$

$(3.6 \div 9) \times (10^9 \div 10^3)$

0.4×10^6

4×10^5

Answer: ___ 4×10^5 ___

What error did Sanjay make? When Sanjay divided the powers of ten, he divided the exponents instead of subtracting them.

Anita

Circle the error:

$(5.5 \times 10^5) + (3.8 \times 10^4)$

$[(5.5 \times 10) \times 10^4] + (3.8 \times 10^4)$

$(55 \times 10^4) + (3.8 \times 10^4)$

$(55 + 3.8) \times 10^4$

58.8×10^4

$\boxed{5.88 \times 10^4}$

Answer: 5.88×10^4

Show the correct work:

$(5.5 \times 10^5) + (3.8 \times 10^4)$

$[(5.5 \times 10) \times 10^4] + (3.8 \times 10^4)$

$(55 \times 10^4) + (3.8 \times 10^4)$

$(55 + 3.8) \times 10^4$

58.8×10^4

5.88×10^5

Answer: ___ 5.88×10^5 ___

What error did Anita make? When Anita rewrote the product in proper scientific notation, she didn't change the exponent on the power of ten.

Jaden

Circle the error:

$(7.6 \times 10^{-6})(4.7 \times 10^4)$

$(7.6 \times 4.7)(10^{-6} \times 10^4)$

$35.72 \times \boxed{10^2}$

3.572×10^3

Answer: 3.572×10^3

Show the correct work:

$(7.6 \times 10^{-6})(4.7 \times 10^4)$

$(7.6 \times 4.7)(10^{-6} \times 10^4)$

35.72×10^{-2}

3.572×10^{-1}

Answer: ___ 3.572×10^{-1} ___

What error did Jaden make? When Jaden multiplied the powers of ten, he incorrectly added the exponents.