

A

Correct _____

Multiply.

1	$1 \times 3 =$		23	$10 \times 3 =$	
2	$3 \times 1 =$		24	$9 \times 3 =$	
3	$2 \times 3 =$		25	$4 \times 3 =$	
4	$3 \times 2 =$		26	$8 \times 3 =$	
5	$3 \times 3 =$		27	$5 \times 3 =$	
6	$4 \times 3 =$		28	$7 \times 3 =$	
7	$3 \times 4 =$		29	$6 \times 3 =$	
8	$5 \times 3 =$		30	$3 \times 10 =$	
9	$3 \times 5 =$		31	$3 \times 5 =$	
10	$6 \times 3 =$		32	$3 \times 6 =$	
11	$3 \times 6 =$		33	$3 \times 1 =$	
12	$7 \times 3 =$		34	$3 \times 9 =$	
13	$3 \times 7 =$		35	$3 \times 4 =$	
14	$8 \times 3 =$		36	$3 \times 3 =$	
15	$3 \times 8 =$		37	$3 \times 2 =$	
16	$9 \times 3 =$		38	$3 \times 7 =$	
17	$3 \times 9 =$		39	$3 \times 8 =$	
18	$10 \times 3 =$		40	$11 \times 3 =$	
19	$3 \times 10 =$		41	$3 \times 11 =$	
20	$3 \times 3 =$		42	$12 \times 3 =$	
21	$1 \times 3 =$		43	$3 \times 13 =$	
22	$2 \times 3 =$		44	$13 \times 3 =$	

B

Improvement _____

Correct _____

Multiply.

1	$3 \times 1 =$		23	$9 \times 3 =$	
2	$1 \times 3 =$		24	$3 \times 3 =$	
3	$3 \times 2 =$		25	$8 \times 3 =$	
4	$2 \times 3 =$		26	$4 \times 3 =$	
5	$3 \times 3 =$		27	$7 \times 3 =$	
6	$3 \times 4 =$		28	$5 \times 3 =$	
7	$4 \times 3 =$		29	$6 \times 3 =$	
8	$3 \times 5 =$		30	$3 \times 5 =$	
9	$5 \times 3 =$		31	$3 \times 10 =$	
10	$3 \times 6 =$		32	$3 \times 1 =$	
11	$6 \times 3 =$		33	$3 \times 6 =$	
12	$3 \times 7 =$		34	$3 \times 4 =$	
13	$7 \times 3 =$		35	$3 \times 9 =$	
14	$3 \times 8 =$		36	$3 \times 2 =$	
15	$8 \times 3 =$		37	$3 \times 7 =$	
16	$3 \times 9 =$		38	$3 \times 3 =$	
17	$9 \times 3 =$		39	$3 \times 8 =$	
18	$3 \times 10 =$		40	$11 \times 3 =$	
19	$10 \times 3 =$		41	$3 \times 11 =$	
20	$1 \times 3 =$		42	$13 \times 3 =$	
21	$10 \times 3 =$		43	$3 \times 13 =$	
22	$2 \times 3 =$		44	$12 \times 3 =$	

© Bill Davidson

Name _____

Date _____

1. Write the following in exponential form (e.g., $100 = 10^2$).

a. $10,000 =$ _____

d. $100 \times 100 =$ _____

b. $1000 =$ _____

e. $1,000,000 =$ _____

c. $10 \times 10 =$ _____

f. $1000 \times 1000 =$ _____

2. Write the following in standard form (e.g., $5 \times 10^2 = 500$).

a. $9 \times 10^3 =$ _____

e. $4.025 \times 10^3 =$ _____

b. $39 \times 10^4 =$ _____

f. $40.25 \times 10^4 =$ _____

c. $7200 \div 10^2 =$ _____

g. $725 \div 10^3 =$ _____

d. $7,200,000 \div 10^3 =$ _____

h. $7.2 \div 10^2 =$ _____

3. Think about the answers to Problem 2(a–d). Explain the pattern used to find an answer when you multiply or divide a whole number by a power of 10.

4. Think about the answers to Problem 2(e–h). Explain the pattern used to place the decimal in the answer when you multiply or divide a decimal by a power of 10.

5. Complete the patterns.

a. $0.03 \quad 0.3 \quad \underline{\hspace{1cm}} \quad 30 \quad \underline{\hspace{1cm}} \quad \underline{\hspace{1cm}}$

- b. 6,500,000 65,000 _____ 6.5 _____
- c. _____ 9,430 _____ 94.3 9.43 _____
- d. 999 9990 99,900 _____ _____ _____
- e. _____ 7.5 750 75,000 _____ _____
- f. Explain how you found the missing numbers in set (b). Be sure to include your reasoning about the number of zeros in your numbers and how you placed the decimal.
- g. Explain how you found the missing numbers in set (d). Be sure to include your reasoning about the number of zeros in your numbers and how you placed the decimal.
6. Shaunnie and Marlon missed the lesson on exponents. Shaunnie incorrectly wrote $10^5 = 50$ on her paper, and Marlon incorrectly wrote $2.5 \times 10^2 = 2.500$ on his paper.
- a. What mistake has Shaunnie made? Explain using words, numbers, and pictures why her thinking is incorrect and what she needs to do to correct her answer.
- b. What mistake has Marlon made? Explain using words, numbers, and pictures why his thinking is incorrect and what he needs to do to correct his answer.

Name _____

Date _____

1. Write the following in exponential form and as a multiplication sentence using only 10 as a factor (e.g., $100 = 10^2 = 10 \times 10$).

a. 1,000 = _____ = _____

b. 100×100 = _____ = _____

2. Write the following in standard form (e.g., $4 \times 10^2 = 400$).

a. $3 \times 10^2 =$ _____

c. $800 \div 10^2 =$ _____

b. $2.16 \times 10^4 =$ _____

d. $754.2 \div 10^3 =$ _____

Name _____ Date _____

1. Write the following in exponential form (e.g., $100 = 10^2$).

a. $1000 =$ _____

d. $100 \times 10 =$ _____

b. $10 \times 10 =$ _____

e. $1,000,000 =$ _____

c. $100,000 =$ _____

f. $10,000 \times 10 =$ _____

2. Write the following in standard form (e.g., $4 \times 10^2 = 400$).

a. $4 \times 10^3 =$ _____

e. $6.072 \times 10^3 =$ _____

b. $64 \times 10^4 =$ _____

f. $60.72 \times 10^4 =$ _____

c. $5300 \div 10^2 =$ _____

g. $948 \div 10^3 =$ _____

d. $5,300,000 \div 10^3 =$ _____

h. $9.4 \div 10^2 =$ _____

3. Complete the patterns.

a. 0.02 0.2 _____ 20 _____ _____

b. 3,400,000 34,000 _____ 3.4 _____

c. _____ 8,570 _____ 85.7 8.57 _____

d. 444 4440 44,400 _____ _____ _____

e. _____ 9.5 950 95,000 _____ _____

4. After a lesson on exponents, Tia went home and said to her mom, “I learned that 10^4 is the same as 40,000.” She has made a mistake in her thinking. Use words, numbers or a place value chart to help Tia correct her mistake.
5. Solve $247 \div 10^2$ and 247×10^2 .
- a. What is different about the two answers? Use words, numbers or pictures to explain how the decimal point shifts.
- b. Based on the answers from the pair of expressions above, solve $247 \div 10^3$ and 247×10^3 .