Name _____ Date _____

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

a. 3 zeros! ⇩ 1000 = 10^3

b. 10 × 10 = _____

c. 100,000 = 10^5

d. 100 × 10 = _____

e. 1,000,000 = _____

f. 10,000 × 10 = 10^5

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

a. 4×10^3 = _____

b. 64×10^4 = _____

c. $5{,}300 \div 10^2$ = _____

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

e. 6.072×10^3 = _____

f. 60.72×10^4 = _____

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

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

3. Complete the patterns.

a. 0.02 0.2 2 20 200 2,000

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

c. _____ 8,570 _____ 85.7 8.57 _____

d. 444 4440 44,400 _____ _____ _____

e. 0.095 9.5 950 95,000 9,500,000 950,000,000

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 digits shift.

247 ÷ 100 = 2.47 247 × 100 = 24,700

2.47 is 100 times smaller than 247.
24,700 is 100 times larger than 247

   b. Based on the answers from the pair of expressions above, solve $247 \div 10^3$ and 247×10^3.