

**Mathematics Preparation For High School Chemistry**  
**Working With Exponents**

**Student Examples**

1.  $5^0 = 1$

2.  $7^0 = 1$

3.  $3^1 = 3$

4.  $5^1 = 5$

5.  $10^1 = 10$

6.  $5^2 = 5 \times 5 = 25$

7.  $7^2 = 7 \times 7 = 49$

8.  $4^3 = 4 \times 4 \times 4 = 64$

9.  $2^{-5} = 1/2^5 = 1/32$

10.  $10^{-4} = 1/10^4 = 1/10,000$

**Student Problems**

1.  $4^0$

2.  $9^0$

3.  $8^1$

4.  $15^1$

5.  $7^1$

6.  $8^2$

7.  $9^3$

8.  $2^6$

9.  $3^{-4}$

10.  $5^{-3}$

**Mathematics Preparation For High School Chemistry  
Using Exponential Notation**

**Student Examples**

1.  $1.03 \times 10^4$   
=  $1.03 \times 10 \times 10 \times 10 \times 10$   
= 10,300

2.  $6.4 \times 10^2$   
=  $6.4 \times 10 \times 10$   
= 640

3.  $4.9 \times 10^5$   
=  $4.9 \times 10 \times 10 \times 10 \times 10 \times 10$   
= 490,000

4.  $2.5 \times 10^{-3}$   
=  $2.5 \times (1/10^3)$   
= .0025

**Student Problems**

1.  $3.5 \times 10^2$

2.  $6.0 \times 10^{-4}$

3.  $4.4 \times 10^{-1}$

4.  $6.8 \times 10^{-2}$

5.  $3.2 \times 10^0$

6.  $4.2 \times 10^{-1}$

7.  $6.0 \times 10^3$

8.  $1.1 \times 10^{-9}$

9.  $3.2 \times 10^4$

10.  $7.5 \times 10^{-2}$

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**Student Examples**

1.  $1.03 \times 10^4$   
=  $1.03 \times 10 \times 10 \times 10 \times 10$   
= 10,300

2.  $6.4 \times 10^2$   
=  $6.4 \times 10 \times 10$   
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=  $4.9 \times 10 \times 10 \times 10 \times 10 \times 10$   
= 490,000

4.  $2.5 \times 10^{-3}$   
=  $2.5 \times (1/10^3)$   
= .0025

**Student Problems**

1.  $3.5 \times 10^2 = 350$

2.  $6.0 \times 10^{-4} = .0006$

3.  $4.4 \times 10^{-1} = .44$

4.  $6.8 \times 10^{-2} = .068$

5.  $3.2 \times 10^0 = 3.2$

6.  $4.2 \times 10^{-1} = .42$

7.  $6.0 \times 10^3 = 6,000$

8.  $1.1 \times 10^{-9} = .0000000011$

9.  $3.2 \times 10^4 = 32,000$

10.  $7.5 \times 10^{-2} = .075$