



- \*20 questions
- \*Calculators allowed during some question
- \*Show all work/steps- use separate paper
- \*Recommend time frame 45min -60min

### Concept of Powers and Exponents

1. True or False: Properties of exponents only apply to variables not real numbers?
2. Use the properties of exponents to finish the statement,  $a^m \times a^n =$
3. Zero to the zero power,  $0^0$ , is equal to zero?
4. Is there a property of exponents that could help us simplify,  $2^5 + 2^3$  ?
5. How do powers and exponents help us in mathematics? (hint: scientific notation)

### Properties of Exponents

Directions: Use the property of exponents to fully simplify the expressions – no negative exponents in your final answer

6.  $\pi^0$
7.  $(x^2y)(xy^3)$
8.  $(yz^2x^4)^5$
9.  $t^{-2}$

10.  $\frac{xw^5}{w^{-4}x}$

11.  $\frac{a^3b^2c^5}{a^{-3}b^{-4}c}$

12.  $(yz^2x^4)^3 (yz^3x^{-4})^5$

13.  $\frac{a^4b^{-4}c^5}{a^{-3}b^{-4}c} \div \frac{a^3b^2c^5}{a^{-3}b^2c}$

Scientific Notation

14. Write the number in scientific notation 2,350,000

15. Write the number in decimal form( take out of scientific notation)  $3.68 \times 10^{-6}$

16. Which number is greater? .000005323 or  $6.7 \times 10^{-5}$

17. Simplify and write your answer in scientific notation  $\frac{7.8 \times 10^{-4} \times 3598000}{-.00045}$

Compound Interest

18. What is the difference between principal and interest?

19. Your grandmother gives you \$2000 for college. She tells you to invest the money in a savings account that pays 6% interest compounded yearly. How much will your account balance be after 5 years?

20. You are given two investments to select from, which will earn you more money?

Investment A:

Starting amount: \$10    Type: your balance doubles every month    Duration: 1 year

Investment B:

Starting amount: \$2000    Type: compounded annually at 8% interest    Duration: 1 year