

Exponents and Powers

1) Simplify the following, if possible:

a) $\frac{x^3}{x^9} =$ _____

b) $(x^5)^5 =$ _____

c) $\frac{n^7}{n^2} =$ _____

d) $k^3 \cdot k^3 =$ _____

e) $(y^8)^7 =$ _____

f) $|(-3)^2|^3 =$ _____

g) $2y^2 \cdot (2y)^3 =$ _____

h) $(-2t)^2 \cdot (-t)^3 =$ _____

i) $x^{-2} \cdot x^2 \cdot y^4 \cdot y^{-3} =$ _____

j) $\left(\frac{2xy^{-2}y^4}{3xy}\right)^{-1} \cdot \left(\frac{xy}{2x^{-2}y}\right) =$ _____

2) Greg inherits \$1000 at the age 10. He is considering investing it in a certificate of deposit for 10 years at an interest rate of 8% annually. How much would his investment be worth in 5 and 10 years? _____

3) A business earned \$150,000 in 1980. Their earnings declined 2% for the next 10 years. Write a mathematical model for their earnings decline, with 1980 represented by $t = 0$, and calculate their earnings in 1990? _____

4) Convert the following numbers to scientific notation:

a) 150000000000 = _____

b) 0.000000000236 = _____

c) -0.00235 = _____

e) $145 \times 10^{56} =$ _____

5) The United States population is approximately 280 million and the world population is approximately 6.3 billion. Write a ratio of the United States population to the world's population; express the ratio in scientific notation and as a percentage?
