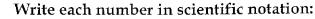
Algebra 1 (3206)

Name: KEY

Final Exam Review Term 3, Chapter 8



Simplify each expression. Write each answer in scientific notation.

4.
$$(7.2 \times 10^{-7})(2 \times 10^{-5})$$

5.
$$(1.6 \times 10^5)(3 \times 10^{11})$$

6.
$$(3 \times 10^8)(2 \times 10^{-4})$$

7.
$$(6 \times 10^{-7})(3.2 \times 10^{2})$$

$$19.9 \times 10^{-5}$$

8.
$$(2 \times 10^{-3})^3$$

9.
$$\frac{9.35\times10^{-3}}{3.71\times10^{-5}}$$

10.
$$\frac{4\times10^9}{8\times10^3}$$

$$11. \frac{1.8 \times 10^{-8}}{0.9 \times 10^3}$$

Simplify each expression.

12.
$$(x^{5}y^{3})^{3}(xy^{5})^{2}$$

 $X^{15}y^{9}X^{2}y^{10}$
 $X^{17}y^{19}$

$$14. (-8m^{4}n^{-3})(4m^{-1}n^{-4})$$

$$-32m^{3}n^{-7}$$

$$\boxed{-32m^{3}}$$

$$n^{7}$$

$$16.5^{-6}5^{4}
5^{-2} = \frac{1}{5^{2}} = \boxed{\frac{1}{35}}$$

18.
$$\left(\frac{r^{-3}s^2t^{-5}}{r^{-4}s^2t^3}\right)^2$$

$$\frac{r^{-6}S^4t^{-10}}{r^{-8}S^4t^6} = \boxed{\frac{r^2}{t^{16}}}$$

$$20. \, \frac{x^4 y^{-8} z^{-2}}{x^{-1} y^6 z^{-10}}$$

13.
$$(3f^{4}g^{-3})^{3}(f^{2}g^{-2})^{-2}$$

$$27f^{12}g^{-9}f^{-4}g^{4}$$

$$27f^{8}g^{-5}$$

$$27f^{8}$$

$$15. x^{-9} x^{0} x^{5} x^{2}$$

$$x^{-9} x^{7} = x^{-2} = \boxed{\frac{1}{x^{2}}}$$

17.
$$\frac{a^7b^8c^3}{a^4b^{11}c^7}$$
 $0^3b^{-3}c^{-4}$

$$19. \left(\frac{2x^{5}y^{-3}z^{0}}{3x^{-6}y^{-5}z^{-1}} \right)^{-4} \left(\frac{3x^{-6}y^{-5}z^{-1}}{2x^{5}y^{-3}} \right)^{+4}$$

$$\frac{81x^{-24}y^{-20}z^{-4}}{16x^{20}y^{-12}} = \frac{81z^{8}}{16x^{44}y^{8}}$$

21.
$$n^{6}(n^{-2})^{5}$$

 $n^{6} \cdot n^{-10} = n^{-4} = \frac{1}{n^{4}}$

Write an exponential function to model each situation. Find each amount at the end of the specified time. $U = Q \cdot V$

22. A town with a population of 15,000 grows 3% per year. Find the population at the end of year 10.

$$y=15000 \cdot (1.03)'' = 20,158.74 - [20,158]$$

23. You buy a new computer for \$5,000. The computer depreciates in value (loses value) at a rate of 13.5% each year. How much will your computer be worth in 8 years?

24. The starting salary for a new employee is \$32,500 per year. The salary will increase 8% per year. What will the salary be after 5 years? After 10 years?

$$y = 32,500(1.08)^5 = (447,018.50)$$

$$y = 32,500(1.08)^6 = (470,165.06)$$

25. A city of 2,950,000 people has a 2.5% annual decrease in population per year. What will the population be after 7 years? $100^{\circ}-2.5^{\circ}=97.5^{\circ}$, 97.5°