

Exam

Name \_\_\_\_\_

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Simplify. Write the answer with positive exponents.

1)  $\left(\frac{3x^2y^2}{z^4}\right)^4$

2)  $-(4)^0$

3)  $\frac{(5xy^3z-3)^2}{(2x^5yz-3)^{-1}}$

4)  $m^7 \cdot m^5 \cdot m^8$

5)  $\frac{(4xy-2)^{-2}}{2xy^3}$

6)  $(-7)^6(-7)^8$

7)  $\left(\frac{4x-2y^2}{12x-4y-1}\right)^3$

8)  $\frac{-36x^{11}y^{12}z^5}{4x^3y^9z^4}$

9)  $(-10)^0$

10)  $\frac{-4x^7}{2x^2}$

11)  $(3x^5y^4)^2(x^7y^1)^{-3}$

12)  $\frac{1}{5^{-3}}$

13)  $\frac{28x^{-5}y^5}{4xy^{-5}}$

Perform the indicated operation. Write the answer in scientific notation.

14)  $\frac{0.00021 \times 0.0002}{0.0007}$

15)  $\frac{9.84 \times 10^3}{4 \times 10^{-2}}$

16)  $\frac{480,000,000,000,000}{0.00000008}$

17)  $(2 \times 10^{-4})(1.2 \times 10^{-7})$

Solve. Write the answer in scientific notation.

18) A particle is observed moving at  $4.58 \times 10^{-3}$  meters per second. Find the distance the particle would travel in  $7.46 \times 10^{-4}$  seconds.

19) If the mass of an object is  $2.73028 \times 10^{-8}$  tons and its density is  $7.96 \times 10^{-7}$  tons per cubic foot, find the volume of this object. (Use the formula  $D = \frac{M}{V}$ .)

Simplify. Assume that variables in the exponent represent nonzero integers.

20)  $(x^{9a} + 8)^3$