

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

2)  $-(9)^0$

3)  $\frac{25x^{-8}y^4}{5xy^{-5}}$

4)  $\frac{10x^{13}y^{13}z^6}{5x^7y^9z^5}$

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

6)  $(4x^4y^5)^2(x^6y^1)^{-3}$

7)  $\frac{1}{2^{-4}}$

8)  $s^2 \cdot s^5 \cdot s^9$

9)  $\frac{-8x^7}{2x^2}$

10)  $(-11)^0$

11)  $\frac{(3xy^4z^{-2})^2}{(2x^5yz^{-3})^{-1}}$

12)  $(-7)^6(-7)^8$

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

Solve. Write the answer in scientific notation.

14) A particle is observed moving at  $7.25 \times 10^{-2}$  meters per second. Find the distance the particle would travel in  $9.23 \times 10^{-5}$  seconds.

15) If the mass of an object is  $6.79668 \times 10^2$  tons and its density is  $8.13 \times 10^{-4}$  tons per cubic foot, find the volume of this object. (Use the formula  $D = \frac{M}{V}$ .)

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

16)  $\frac{14.2 \times 10^{-5}}{4 \times 10^{-4}}$

17)  $(9 \times 10^5)(1.1 \times 10^{-9})$

18)  $\frac{240,000,000,000}{0.000008}$

19)  $\frac{0.00018 \times 0.0002}{0.0006}$

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

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