

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) $\frac{-10x^{13}}{2x^2}$

2) $t^5 \cdot t^9 \cdot t^3$

3) $\frac{1}{2^{-3}}$

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

5) $\frac{12x^{-4}y^5}{3xy^{-2}}$

6) $-(6)^0$

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

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

9) $(2x^3y^4)^2(x^5y^1)^{-3}$

10) $\frac{-42x^9y^8z^6}{6x^3y^3z^5}$

11) $(-2)^0$

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

13) $(-9)^7(-9)^5$

Solve. Write the answer in scientific notation.

14) If the mass of an object is 1.76732×10^{-9} tons and its density is 3.91×10^{-7} tons per cubic foot, find the volume of this object. (Use the formula $D = \frac{M}{V}$.)

15) A particle is observed moving at 5.48×10^{-4} meters per second. Find the distance the particle would travel in 8.55×10^{-5} seconds.

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

16) $\frac{17.75 \times 10^9}{5 \times 10^{-4}}$

17) $\frac{0.0015 \times 0.002}{0.005}$

18) $(3 \times 10^{-1})(1.3 \times 10^9)$

19) $\frac{180,000,000,000,000}{0.00000003}$

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

20) $(x^{7a} + 6)^3$