EXPONENTS PRACTICE

Simplify:

1. $3 \cdot 4^3$
2. $4x^3 \cdot 2x^3$
3. $x^5 \cdot x^3$
4. $2x^3 \cdot 2x^2$
5. $\frac{6^5}{6^3}$
6. $\frac{x^4}{x^7}$
7. 8^0
8. $-(9x)^0$
9. $(y^4)^3$
10. $(x^2y)^4$
11. $\frac{6x^7}{2x^4}$
12. $\frac{8x^5}{4x^2}$
13. $(2cd^4)^2(cd)^5$
14. $(2fg^4)^4(fg)^6$
15. $\frac{x^5y^6}{xy^2}$
16. $\frac{x^2y^5}{xy^4}$
17. $\left(\frac{4x^5y}{16xy^4}\right)^3$
18. $\left(\frac{5x^3y}{20xy^5}\right)^4$
19. y^{-7}
20. 7^{-2}
21. $\frac{1}{x^{-5}}$
22. $\frac{1}{2^{-4}}$
23. $x^5 \cdot x^{-1}$
24. x^{-6}
25. $x^9 \cdot x^{-7}$
26. $(j^{-13})(j^4)(j^6)$
27. $\frac{x^{-1}}{x^{-8}}$
28. $\frac{52x^6}{13x^{-7}}$
29. $f^{-3}(f^2)(f^{-3})$
30. $\frac{x^{-4}}{x^{-9}}$
31. $\frac{24x^6}{12x^{-8}}$
32. $\frac{3x^2y^{-3}}{12x^6y^3}$
33. $(2x^3y^{-3})^{-2}$
34. $\frac{2x^4y^{-4}}{8x^7y^3}$
35. $(4x^4y^{-4})^3$
36. $5x^2y(2x^4y^{-3})$
37. $\left(\frac{-7a^2b^3c^0}{3a^3b^4c^3}\right)^{-4}$
38. $\left(\frac{-2a^3b^2c^0}{3a^2b^3c^7}\right)^{-2}$

EXPONENTS PRACTICE ANSWERS

1. 192
2. $8x^6$
3. x^8
4. $4x^5$
5. 36
6. $\frac{1}{x^3}$
7. 1
8. -1
9. y^{12}
10. x^8y^4
11. $3x^3$
12. $2x^3$
13. $4c^7d^{13}$
14. $16f^{10}g^{22}$
15. x^4y^4
16. xy
17. $\frac{x^{12}}{64y^9}$
18. $\frac{x^8}{256y^{16}}$
19. $\frac{1}{y^7}$
20. $\frac{1}{49}$
21. x^5
22. 16
23. x^4
24. $\frac{1}{x^6}$
25. x^2
26. $\frac{1}{j^3}$
27. x^7
28. $4x^{13}$
29. $\frac{1}{f^4}$
30. x^5
31. $2x^{14}$
32. $\frac{1}{4x^4y^6}$
33. $\frac{y^6}{4x^6}$
34. $\frac{1}{4x^3y^7}$
35. $\frac{64x^{12}}{y^{12}}$
36. $\frac{10x^6}{y^2}$
37. $\frac{81a^4b^4c^{12}}{2401}$
38. $\frac{9b^2c^{14}}{4a^2}$

Name: Key Section: Algebra B

Quiz 8.4-8.6. Scientific Notation and Exponential Functions.

18/18

Write the numbers in scientific notation.

(2) 1. 54,321,987

5.4321987×10^{7}

(2) 2. .0900008

9.00008×10^{-2}

Write the numbers in standard form.

(2) 3. 2.1×10^{-4}

.00021

(2) 4. 9.8×10^{8}

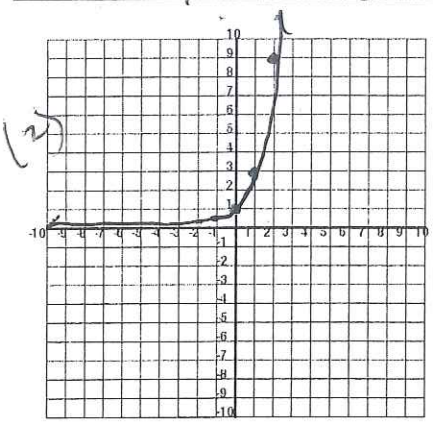
980,000,000

Graph the following exponential function and state the domain and range.

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

x	-2	-1	0	1	2
y	$\frac{1}{9}$	$\frac{1}{3}$	1	3	9

(2)



(1) Domain: $\mathbb{R}$ (all real numbers)

(1) Range: $y > 0$ (all positive real numbers)

6. In 2002, the population of Saline, Michigan was 8,034. Each year, for the next 5 years, the population increased by 2.5%. Write an exponential model to represent this situation and determine the new population in 5 years.

$y = a(1+r)^{t}$

$y = 8{,}034(1+0.025)^{t}$

(2) $y = 8{,}034(1.025)^{t}$

$y = 8034(1.025)^{5}$

(2) $y = 9090$ people

In 5 years, the population of Saline would be about 9090 people.