

Name:
Instructor:

Date:
Section:

Practice Set 1.5

Use the choices below to fill in each blank.

product rule
quotient rule

negative exponent rule
zero exponent rule

power rule
additive Inverse

- $a^m \cdot a^n = a^{m+n}$ is called the _____.
- $a^{-m} = \frac{1}{a^m}$ is called the _____.
- $(a^m)^n = a^{m \cdot n}$ is called the _____.
- $a^0 = 1$ is called the _____.

Simplify each expression. Write the answer without negative exponents.
Assume that all bases represented by variables are nonzero.

- | | | |
|-------------------------------------|---|-----------|
| 5. $4^2 \cdot 4^1$ | 6. $x^2 \cdot x^5$ | 5. _____ |
| | | 6. _____ |
| 7. $\frac{3^5}{3^2}$ | 8. $\frac{x^7}{x^4}$ | 7. _____ |
| | | 8. _____ |
| 9. $7x^0$ | 10. $-7x^0$ | 9. _____ |
| | | 10. _____ |
| 11. $(-7x)^0$ | 12. $-(-7x)^0$ | 11. _____ |
| | | 12. _____ |
| 13. $\left(\frac{2}{3}\right)^{-2}$ | 14. $-(4)^{-2}$ | 13. _____ |
| | | 14. _____ |
| 15. $6x^{-2}y^{-3}z$ | 16. $\frac{14xy^2z^{-3}}{7x^{-3}y^{-1}z^4}$ | 15. _____ |
| | | 16. _____ |

Practice Set 1.5

Simplify each expression. Write the answer without negative exponents. Assume that all bases represented by variables are nonzero.

17. $\left(\frac{5}{x^3}\right)^3$

18. $(-3x^2y^{-3})^{-2}$

17. _____

18. _____

19. $\left(\frac{4x^3y^2z^5}{2xy^5z^7}\right)^{-1}$

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

19. _____

20. _____

21. $\frac{(3x^{-3}y^2)^{-2}}{(x^{-4}y^{-2})^{-3}}$

22. $\frac{(2m^{-1}n^3p^{-2})^{-1}}{(3mn^{-2}p^4)^2}$

21. _____

22. _____

23. $3 \cdot 4^{-2} + 6 \cdot 8^{-1}$

24. $4^{-1} + 5^{-1}$

23. _____

24. _____

Determine what exponents must be placed in the [] to make each expression true.

25. $\left(\frac{x^2y^{-3}}{x^{[]}y^2}\right)^2 = \frac{x^{12}}{y^{10}}$

26. $\left(\frac{x^{[]}y^3z^{-1}}{x^4y^{-2}z^{-3}}\right)^{-1} = \frac{x^2}{y^5z^2}$

25. _____

26. _____

Challenge

27. $\left(\frac{x^{1/2}y^3}{x^{-1}y^{3/2}}\right)^{1/2}$

27. _____