

Homework December 9th:

Page 479-480:

1. Consider a^5 . a. What is the base? b. What is the exponent? c. What is the power? d. How can this power be written using repeated multiplication?

Determine whether the answer will be positive or negative. You do **not** have to provide the answer.

1. $-(3^4)$
2. -8^2
3. $10 \times (-4)^3$
4. What is the difference between -5^2 and $(-5)^2$?

Write in exponential notation.

1. $2 \cdot 2$
2. $(-3)(-3)(-3)$
3. $y \cdot y \cdot y \cdot y \cdot y$
4. $(3a)(3a)(3a)(3a)$
5. $4 \cdot 4 \cdot 4 \cdot 4 \cdot 4$
6. $3x \cdot 3x \cdot 3x$
7. $(-2a)(-2a)(-2a)(-2a)$

8. $6 \cdot 6 \cdot 6 \cdot x \cdot x \cdot y \cdot y \cdot y \cdot y$

Find each number.

1. 1^{10}
2. 0^3
3. 7^3
4. -6^2
5. 5^4
6. $3^4 \cdot 3^7$
7. $2^6 \cdot 2$
8. $(4^2)^3$
9. $(-2)^6$
10. $(0.1)^5$
11. $(-0.6)^3$

Multiply and simplify.

1. $6^3 \cdot 6^6$
2. $2^2 \cdot 2^4 \cdot 2^6$
3. $3^2 \cdot 4^3$
4. $x^2 \cdot x^4$
5. $x^2 \cdot x^7$
6. $(y^3)^5$
7. $(-2y^4)(-3y)$
8. $(4a^2)(-3a)(-5a^4)$

Simplify.

1. $(a^3)^4$
2. $(xy)^2$
3. $(3a^2b^3)^4$
4. $(-2xy^4z^2)^5$
5. $(3x^2y^3) \cdot (4xy^2)$
6. $(4xyz) \cdot (x^2y^3) \cdot (2yz^4)$
7. $(2a^3b^3)^2$
8. $(-8x)^3(5x)^2$
9. $(4a^2)(-2a^3)^4$
10. $(12xy)(12xy)^2$
11. $(2xy^2)(-x^2y)^2(3x^2y^2)$

Homework December 10th:

Page 483 or 486-487 Problems:

Evaluate the following expressions.

1. $\frac{5^6}{5^2}$
2. $\frac{6^7}{6^3}$
3. $\frac{3^{10}}{3^4}$
4. $\left(\frac{2^2}{3^3}\right)^3$

Simplify the following expressions.

1. $\frac{a^3}{a^2}$
2. $\frac{x^9}{x^5}$
3. $\frac{x^{10}}{x^5}$
4. $\frac{a^6}{a}$
5. $\frac{a^5b^4}{a^3b^2}$
6. $\frac{4^5}{4^2}$
7. $\frac{5^3}{5^7}$
8. $\left(\frac{3^4}{5^2}\right)^2$
9. $\left(\frac{a^3b^4}{a^2b}\right)^3$
10. $\frac{x^6y^5}{x^2y^3}$
11. $\frac{6x^2y^3}{2xy^2}$
12. $\left(\frac{2a^3b^3}{8a^7b}\right)^2$
13. $(x^2)^2 \cdot \frac{x^6}{x^4}$
14. $\left(\frac{16a^2}{4b^5}\right)^3 \cdot \frac{b^2}{a^{16}}$
15. $\frac{6a^3}{2a^2}$
16. $\frac{15x^5}{5x}$
17. $\left(\frac{18a^{10}}{15a^4}\right)^4$
18. $\frac{25yx^6}{20y^3x^2}$
19. $\left(\frac{x^6y^2}{x^4y^4}\right)^3$
20. $\left(\frac{6a^2}{4b^4}\right)^2 \cdot \frac{5b}{3a}$
21. $\frac{(3ab)^2(4a^3b^4)^3}{(6a^2b)^4}$
22. $\frac{(2a^2bc^2)(6abc^3)}{4ab^2c}$

Homework December 11th:

Page 489 Problems:

Simplify the following expressions. Be sure the final answer includes only positive exponents.

1. $x^{-1} \cdot y^2$
2. x^{-4}

3. $\frac{x^{-3}}{x^{-7}}$
4. $\frac{1}{x^5}$
5. $\frac{x^2}{y^3}$
6. $\frac{x^2}{y^3}$
7. $\frac{3}{xy}$
8. $3x^{-3}$
9. $a^2b^{-3}c^{-1}$
10. $4x^{-1}y^3$
11. $\frac{2x^{-2}}{y^{-3}}$
12. $a^{\frac{1}{2}} \cdot a^{\frac{1}{3}}$
13. $\left(a^{\frac{1}{3}}\right)^2$
14. $\frac{a^5}{a^2}$
15. $\left(\frac{x^2}{y^3}\right)^{\frac{1}{3}}$
16. $\frac{x^{-3}y^{-5}}{z^{-7}}$
17. $(x^{\frac{1}{2}}y^{-\frac{2}{3}})(x^2y^{\frac{1}{3}})$
18. $\left(\frac{a}{b}\right)^{-2}$
19. $(3a^{-2}b^2c^3)^3$
20. $x^{-3} \cdot x^3$

Simplify the following expressions without any fractions in the answer.

1. $\frac{a^{-3}(a^5)}{a^{-6}}$
2. $\frac{5x^6y^2}{x^8y}$
3. $\frac{(4ab^6)^3}{(ab)^5}$
4. $\left(\frac{3x}{y^{\frac{1}{3}}}\right)^3$
5. $\frac{4a^2b^3}{2a^5b}$
6. $\left(\frac{x}{3y^2}\right)^3 \cdot \frac{x^2y}{4}$
7. $\left(\frac{ab^{-2}}{b^3}\right)^2$
8. $\frac{x^{-3}y^2}{x^2y^{-2}}$
9. $\frac{3x^2y^{\frac{3}{2}}}{xy^{\frac{1}{2}}}$
10. $\frac{(3x^3)(4x^4)}{(2y)^2}$
11. $\frac{a^{-2}b^{-3}}{c^{-1}}$
12. $\frac{x^{\frac{1}{2}}y^{\frac{5}{2}}}{x^{\frac{3}{2}}y^{\frac{3}{2}}}$

Evaluate the following expressions to a single number.

1. 3^{-2}
2. $(6.2)^0$
3. $8^{-4} \cdot 8^6$
4. $(16^{\frac{1}{2}})^3$
5. 5^0

6. 7^2
7. $(\frac{2}{3})^3$
8. 3^{-3}
9. $16^{\frac{1}{2}}$
10. $8^{\frac{1}{3}}$

In 43 – 45, evaluate the expression for $x = 2, y = -1, z = 3$.

1. $2x^2 - 3y^3 + 4z$
2. $(x^2 - y^2)^2$
3. $(\frac{3x^2y^5}{4z})^{-2}$
4. Evaluate $x^24x^3y^44y^2$ if $x = 2$ and $y = -1$.
5. Evaluate $a^4(b^2)^3 + 2ab$ if $a = -2$ and $b = 1$.
6. Evaluate $5x^2 - 2y^3 + 3z$ if $x = 3, y = 2,$ and $z = 4$.
7. Evaluate $(\frac{a^2}{b^3})^{-2}$ if $a = 5$ and $b = 3$.
8. Evaluate $3 \cdot 5^5 - 10 \cdot 5 + 1$.
9. Evaluate $\frac{2 \cdot 4^2 - 3 \cdot 5^2}{3^2}$.
10. Evaluate $(\frac{3^3}{2^2})^{-2} \cdot \frac{3}{4}$.