

Name: Key
Algebra 1

Date: _____
Band: _____

Unit 6: Exponents PBA Practice

Simplify.

1. $a^2b^{-4}c^0$

$$\frac{a^2}{b^4}$$

2. $\frac{4x^{-2}}{y^{-8}}$

$$\frac{4y^8}{x^2}$$

3. $\frac{1}{p^2q^{-4}r^0}$

$$\frac{q^4}{p^2}$$

4. $\frac{5x^0}{y^{-2}}$

$$5y^2$$

5. $\frac{2x}{y^2z^{-1}}$

$$\frac{2xz}{y^2}$$

6. $(x^3y^5)(-y^7x^1)$

$$(1x^3y^5)(-1y^7x^1)$$

$$-1x^4y^{12}$$

$$\boxed{-x^4y^{12}}$$

7. $2m^3n^2 \cdot 2m^4n^1$

$$4m^7n^3$$

8. $(q^3r)^4$

$$q^{12}r^4$$

9. $(12x^2y^{-2})^5(4xy^{-3})^{-7}$

$$12^5x^{10}y^{-10} \cdot 4^{-7}x^{-7}y^{21}$$

$$\frac{12^5x^3y^{11}}{4^7}$$

$$\boxed{15.1875x^3y^{11}}$$

10. $(-2r^{-4})^2(-3r^2z^8)^{-1}$

$(-2)^2 r^{-8} \cdot (-3)^{-1} r^{-2} z^{-8}$

$4r^{-10} \cdot \frac{1}{3} z^{-8}$

$$\boxed{\frac{4}{3r^{10}z^8}}$$

11. $\frac{21x^3}{3x^{-1}}$

$7x^4$

12. $\left(\frac{n^5}{v^3}\right)^7$

$\frac{n^{35}}{v^{21}}$

13. $\left(\frac{3c^3}{e^5}\right)^{-4}$

$\left(\frac{e^5}{3c^3}\right)^4$

$\frac{e^{20}}{3^4 c^{12}} = \boxed{\frac{e^{20}}{81c^{12}}}$

14. $\left(\frac{5a^8}{10a^6}\right)^{-3}$

$\left(\frac{10a^6}{5a^8}\right)^3$

$\frac{10^3 a^{18}}{5^3 a^{24}}$

$8a^{-6} = \boxed{\frac{8}{a^6}}$

15. Is it true that $(-3b)^4 = -12b^4$? Explain why or why not.

No, $(-3b)^4 = (-3)^4 b^4 = 81b^4$.

$(-3)^4 = (-3)(-3)(-3)(-3) = 81$ not $-3 \cdot 4 = 12$