Unit V – Second Degree Relations and Higher - Polynomials
Part A – Exponent Notation
Lesson 3 – Extenstions of Operations with Powers

Find the power of the product for each of the following, using exponent notation.

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

Find the power of the product for each of the following, using exponent notation..

11. $\left(\frac{m}{n}\right)^3$
12. $\left(\frac{h}{i}\right)^5$
13. $\left(\frac{^{-}2}{3}\right)^2$
14. $\left(\frac{y}{x}\right)^1$
15. $\left(\frac{a}{b}\right)^7$
16. $\left(\frac{5}{8}\right)^2$
17. $\left(\frac{7}{^{-}2}\right)^3$
18. $\left(\frac{1}{3}\right)^2$
19. $\left(\frac{5}{2}\right)^3$
20. $\left(\frac{^{-}2}{^{-}3}\right)^2$

Simplify each of the following expressions using operations with exponents.

21. $\left(\frac{x^3}{y^4}\right)^2$
22. $\left(\frac{2x^3}{y^4}\right)^2$
23. $\left(\frac{4^3}{3^4}\right)^2$
24. $\left(\frac{x^4}{y^5}\right)^3$
25. $\left(\frac{x^2}{y}\right)^2 \cdot \left(\frac{x^3}{y^5}\right)^2$
26. $\left(\frac{a}{b}\right)^5 \cdot \left(\frac{a}{b}\right)^4$
27. $\left(\frac{2m}{3n}\right)^4$
28. $\left(\frac{ab}{c}\right)^3 (2)^4$
29. $\left(\frac{r}{s}\right)^3 \cdot \left(\frac{r^2}{s^3}\right)^4$
30. $\left(\frac{m^2n}{p}\right)^4 \cdot \left(\frac{m^3n^2}{p^2}\right)^3$

EXTRA PRACTICE — Answer Key

Unit V – Second Degree Relations and Higher - Polynomials
Part A – Exponent Notation
Lesson 3 – Extenstions of Operations with Powers

Find the power of the product for each of the following, using exponent notation.

1. $8a^3$
2. $9x^2y^2$
3. $^-32x^{20}y^{10}$
4. $9x^4y^6$
5. 6^{12}
6. $125a^6b^6$
7. $36a^4b^6c^2$
8. 12^{6b-2ab}
9. 8^{4xy}
10. $4^{5c}x^{15ac}y^{10bc}$

Find the power of the product for each of the following, using exponent notation..

11. $\frac{m^3}{n^3}$
12. $\frac{h^5}{i^5}$
13. $\frac{4}{9}$
14. $\frac{y}{x}$
15. $\frac{a^7}{b^7}$
16. $\frac{25}{64}$
17. $\frac{^-343}{8}$
18. $\frac{1}{9}$
19. $\frac{125}{8}$
20. $\frac{4}{9}$

Simplify each of the following expressions using operations with exponents.

21. $\frac{x^6}{y^8}$
22. $\frac{4x^6}{y^8}$
23. $\frac{4096}{6561}$
24. $\frac{x^{12}}{y^{15}}$
25. $\frac{x^{10}}{y^{12}}$
26. $\frac{a^9}{b^9}$
27. $\frac{16m^4}{81n^4}$
28. $\frac{16a^3b^3}{c^3}$
29. $\frac{r^{11}}{s^{15}}$
30. $\frac{m^{17}n^{10}}{p^{10}}$