Algebra 1 Name_____

Winter Break Assignment - Exponent Laws

Date_____ Algebra____

1) Exponent Laws Video 1 - Multiplication
Please watch the video and takes notes on it below. Your notes should include examples from the video.

2) General Exponent Law for Multiplication:_____

Simplify using the exponent law of multiplicaiton. Your answer should contain only positive exponents.

3) $x^6 \cdot x^3$

4) $a^6 a^5$

5) $b^4 \cdot 2b$

6) $5k^5 \cdot 4k^4 \cdot k^3$

7) $2b^5 \cdot 3b$

8) $v^5 \cdot 3v$

9) $x^3y^2 \cdot 3y^3$

10) $2x^4y^5 \cdot 5x^3y^5$

11) $5x^3y^2 \cdot 2yx^3$

12) $2x^2 \cdot x^2y^2 \cdot 4x^3$

13) Exponent Laws Video 2 - Division
Please watch the video and takes notes on it below. Your notes should include examples from the video.

14) General Exponent Law for Division:_____

Simplify using the exponent law of division. Your answer should contain only positive exponents.

15) $\frac{10r^5}{2r^2}$

16) $\frac{4n^5}{4n}$

17) $\frac{4b^4}{4b}$

18) $\frac{2x^5}{x^3}$

19) $\frac{3a^3b^4}{3a}$

20) $\frac{3x^5y^3}{3yx^4}$

21) $\frac{4v^{10}}{v^4}$

22) $\frac{4x^6y^5}{2x^2y^3}$

23) Exponent Laws Video 3 - Power of a Power
Please watch the video and takes notes on it below. Your notes should include examples from the video.

24) General Exponent Law for Power of a Power:_____

Simplify using the exponent law Power of a Power. Your answer should contain only positive exponents.

25) $(a^3)^2$

26) $(5b^4)^2$

27) $(4a^4)^2$

28) $(4x^3)^3$

29) $(5a^4)^5$

30) $(3u^4v^3)^2$

31) $(5x^5y^5)^4$

32) $(4u^5v^5)^4$

33) Exponent Laws Video 4 - Negative Exponents
Please watch the video and takes notes on it below. Your notes should include examples from the video.

34) General Exponent Law for Negative Exponents: _____

Simplify using the negative exponent law. Your answer should contain only positive exponents.

35) x^{-5}

36) $3a^{-2}$

37) $\dfrac{2}{f^{-2}}$

38) $5p^{2}p^{-4}$

39) $\dfrac{2x^{-2}y^{-3}}{3x^{2}y^{-1} \cdot 3yx^{-3}}$

40) $\dfrac{u^{-4}v^{2}}{4u^{2} \cdot u^{-4}v^{4}}$

41) Exponent Laws Video 5 - Zero Exponents
Please watch the video and takes notes on it below. Your notes should include examples from the video.

42) General Exponent Law for Zero Exponents:_____

Simplify using the zero exponent law. Your answer should contain only positive exponents.

43) $r^0 r^5$

44) $2n^2 \cdot 2n^0$

45) $\left(n^0\right)^2$

46) $\frac{8b^{10}}{2b^0}$

Simplify the following mixed exponents problems. Your answer should contain only positive exponents.

47) $x^{-4} \cdot 4x^2$

48) $\frac{x}{x^0}$

49) $4x^2y^4 \cdot x^3y^{-2}$

50) $\frac{2a^3b^{-1}}{a^{-2}b^2}$

51) $\left(2n^3\right)^{-2}$

52) $2m^0 \cdot 2m^{-4}n^2$

53) $\left(y^3\right)^2$

54) $2p^{-1} \cdot 3p^0$

55) $\dfrac{2uv^4}{2v^{-1}}$

56) $\left(3x^4y^0\right)^3$

Simplify these multistep problems. Your answer should contain only positive exponents.

57) $k \cdot \left(k^5\right)^3$

58) $\left(p^3\right)^3 \cdot 2p$

59) $\dfrac{2n^4}{2n^2 \cdot 2n^2}$

60) $\dfrac{4x^3 \cdot 4x^3}{5x^5}$