SM2 1.1: Integer Exponent

For each problem listed below, simplify and describe the process you used and why.

1) x^8
   Add the exponents together because we are multiplying the same bases

2) d^4
   Subtract the bottom exponent from the top because we are dividing like bases

3) x^{10}
   Multiply the powers because there are multiple copies of the inside

4) 1
   There are 0 multiplications happening with a coefficient of 1

5) $3y^8 \cdot 2y^2$ $6y^{10}$

6) $ab^5 \cdot 8a^2b^5$ $8a^3b^{10}$

7) $5j^4(-9j^5)$ $-45j^9$

8) $(h^4)^3$ h^{12}

9) $(3abc)(2a^2b)$ $6a^3b^2c$

10) $(-2a^2w^3y)^3$ $-8a^6w^9y^3$

11) $(4gz)^2$ $16g^2z^2$

12) $-3(km)^4$ $-3k^4m^4$

13) x^{-4} $\dfrac{1}{x^4}$

14) $\dfrac{3}{c^{-2}}$ $3c^2$

15) $\dfrac{s^3}{s^{-4}}$ s^7

16) $\dfrac{6p^{-2}}{p^2}$ $\dfrac{6}{p^4}$

17) $[(k^5)^2]^3$ k^{30}

18) $\dfrac{a^5b^3}{a^2d}$ $\dfrac{a^3b^3}{d}$

19) $\dfrac{x^3y^2z}{x^2y^2}$ xz

20) $\left(\dfrac{x^2}{3}\right)^3$ $\dfrac{x^6}{27}$

21) $\left(\dfrac{c^5}{b^7}\right)^{10}$ $\dfrac{c^{50}}{b^{70}}$

22) $\dfrac{3x^6}{6x^{10}}$ $\dfrac{1}{2x^4}$

23) $(-3c^5)^2$ $9c^{10}$

24) $\left(\dfrac{2x}{3y^2}\right)^3$ $\dfrac{8x^3}{27y^6}$

25) $a^2b^4 \cdot a^3c^2$ $a^5b^4c^2$

26) $[(-2^3)^3]^2$ 262144   Or 2^{18}

27) $\left(\left(\dfrac{3x^3y^{17}z}{12a^{115}b}\right)^5\right)^0$ 1

28) $\dfrac{9a^2b^7c^3}{2a^5b^4c^5}$ $\dfrac{9b^3}{2a^3c^2}$

29) $\dfrac{(-u^{-3}v^3)^2}{(u^3v)^{-3}}$ u^3v^9

30) $\left(\dfrac{-18x^0a^{-3}}{6(x^{-2}a^{-3})(x^{-3}a^3)}\right)^2$ $\dfrac{9x^{10}}{a^6}$