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Hey, everyone. Alexis Avila; Prepped & Polished, LLC, South Natick, Massachusetts. A lot of students over the years, they keep making the same exponent mistakes. I'm going to go through some of the exponent rules so you don't make the same mistakes I see kids make over and over again. Let's get these rules straight once and for all. Let's go to the board.

One of the exponent rules students confuse is if you have  $X^2 \times X^3$ ; you have the same coefficient here and you're just multiplying.  $X^2 \times X^3$ , students will multiply the exponents. They'll say  $X^2 \times X^3 = X^6$ . That's wrong. You don't do that. Let's get this straight once and for all. It's  $X^2 \times X^3$ , you add the exponents when you're multiplying two of the same coefficient.  $X^2 \times X^3 = X^{2+3}$ ,  $X^5$ . You add the exponents when you multiply exponents with the same bases.

Another exponent rule students confuse is if you take  $X^3$  and you raise  $X^3$  to the 4th power. What they often do wrong is they will add these exponents; they'll just say that's  $X^7$ . That's wrong. Let's get this straight once and for all. If you have an exponent and you're raising it to another exponent . . . if you have  $X^3$  all raised to the 4th, that's when you multiply the exponents. It's the same as  $X^{3 \times 4}$ , or  $X^{12}$ , final answer.

Sometimes, students make this mistake: If you have division with exponents. If you have the same base for a numerator and denominator, but it's  $X^6 / X^3$ . Sometimes, students will say, "I'm just going to divide those exponents." What they say wrong is they'll say it's  $X^{6/3}$ .  $X^{6/3} = X^2$ . That is completely wrong, do not do that. What you want to do when you divide exponents, you subtract the exponents from one another.  $X^6 / X^3$  is the same thing as  $X^{6-3}$ ;  $X^3$ , final answer.

One last error I want to show you, that students often make, is if you have  $(2X)^3$ . What students often do wrong is they will only apply the exponent to the X. They'll say "That is  $2X^3$ , final answer." That is completely false. Do not do that. What you're going to do is apply the exponent to each entity in the parentheses. The answer to  $(2X)^3$  is the same thing is  $2^3 \times X^3 = 8X^3$ , final answer.

Just go over those 4 rules I taught you, and you shouldn't make any careless mistakes when you see an exponent problem on the SAT. Good luck on your test. I'll talk to you soon.