### Lesson 8 Practice Problems

1. Select **all** the true statements:
	1. $2^{8}⋅2^{9}=2^{17}$
	2. $8^{2}⋅9^{2}=72^{2}$
	3. $8^{2}⋅9^{2}=72^{4}$
	4. $2^{8}⋅2^{9}=4^{17}$
2. Find $x$, $y$, and $z$ if $\left(3⋅5\right)^{4}⋅\left(2⋅3\right)^{5}⋅\left(2⋅5\right)^{7}=2^{x}⋅3^{y}⋅5^{z}$.
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1. Han found a way to compute complicated expressions more easily. Since $2⋅5=10$, he looks for pairings of 2s and 5s that he knows equal 10. For example, $3⋅2^{4}⋅5^{5}=3⋅2^{4}⋅5^{4}⋅5=\left(3⋅5\right)⋅\left(2⋅5\right)^{4}=15⋅10^{4}=150,​000.$ Use Han's technique to compute the following:
	1. $2^{4}⋅5⋅\left(3⋅5\right)^{3}$
	2. $\frac{2^{3}⋅5^{2}⋅\left(2⋅3\right)^{2}⋅\left(3⋅5\right)^{2}}{3^{2}}$
2. The cost of cheese at three stores is a function of the weight of the cheese. The cheese is not prepackaged, so a customer can buy any amount of cheese.
	* Store A sells the cheese for $a$ dollars per pound.
	* Store B sells the same cheese for $b$ dollars per pound and a customer has a coupon for $5 off the total purchase at that store.
	* Store C is an online store, selling the same cheese at $c$ dollar per pound, but with a $10 delivery fee.
* This graph shows the price functions for stores A, B, and C.
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	1. Match Stores A, B, and C with Graphs $j$, $k$, and $ℓ$.
	2. How much does each store charge for the cheese per pound?
	3. How many pounds of cheese does the coupon for Store B pay for?
	4. Which store has the lowest price for a half a pound of cheese?
	5. If a customer wants to buy 5 pounds of cheese for a party, which store has the lowest price?
	6. How many pounds would a customer need to order to make Store C a good option?
* (From Unit 5, Lesson 8.)



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