

Lesson 8 Practice Problems

1. Select all the true statements:

A. $2^8 \cdot 2^9 = 2^{17}$

B. $8^2 \cdot 9^2 = 72^2$

C. $8^2 \cdot 9^2 = 72^4$

D. $2^8 \cdot 2^9 = 4^{17}$

2. Find x , y , and z if $(3 \cdot 5)^4 \cdot (2 \cdot 3)^5 \cdot (2 \cdot 5)^7 = 2^x \cdot 3^y \cdot 5^z$.

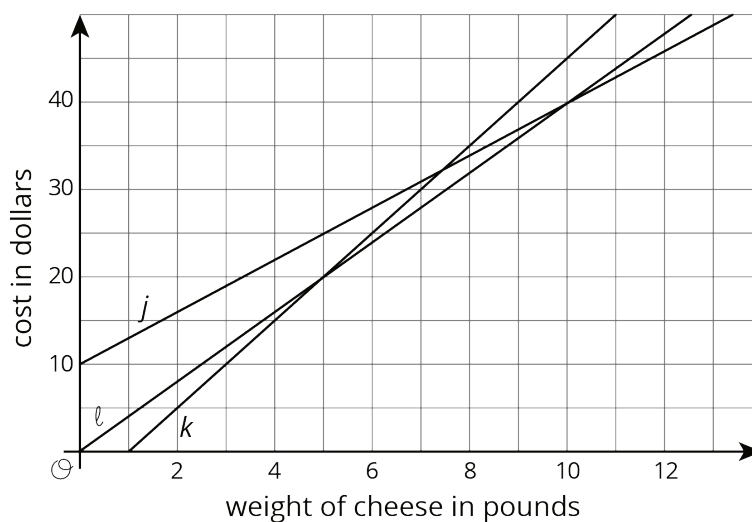
3. Han found a way to compute complicated expressions more easily. Since $2 \cdot 5 = 10$, he looks for pairings of 2s and 5s that he knows equal 10. For example, $3 \cdot 2^4 \cdot 5^5 = 3 \cdot 2^4 \cdot 5^4 \cdot 5 = (3 \cdot 5) \cdot (2 \cdot 5)^4 = 15 \cdot 10^4 = 150,000$. Use Han's technique to compute the following:

a. $2^4 \cdot 5 \cdot (3 \cdot 5)^3$

b. $\frac{2^3 \cdot 5^2 \cdot (2 \cdot 3)^2 \cdot (3 \cdot 5)^2}{3^2}$

4. 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.



- a. Match Stores A, B, and C with Graphs j , k , and l .
- b. How much does each store charge for the cheese per pound?
- c. How many pounds of cheese does the coupon for Store B pay for?
- d. Which store has the lowest price for a half a pound of cheese?
- e. If a customer wants to buy 5 pounds of cheese for a party, which store has the lowest price?
- f. How many pounds would a customer need to order to make Store C a good option?

(From Unit 6, Lesson 8.)