# 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. $\dfrac{2^3 \cdot 5^2 \cdot (2 \cdot 3)^2 \cdot (3 \cdot 5)^2}{3^2}$

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.
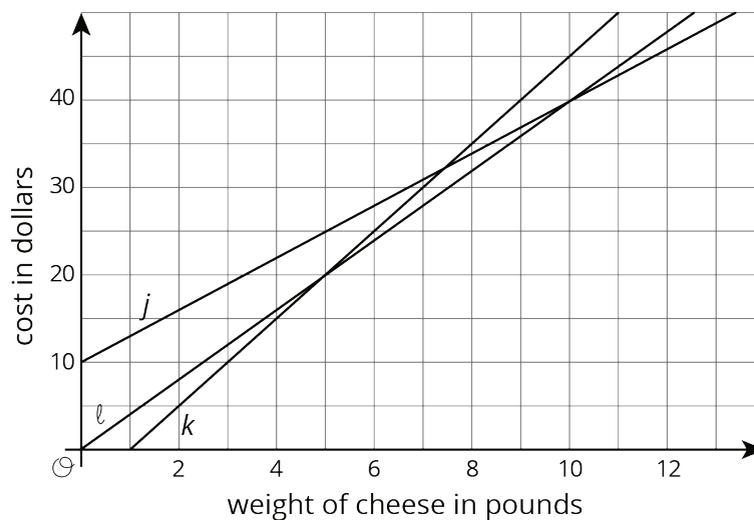


   a. Match Stores A, B, and C with Graphs $j$, $k$, and $\ell$.

   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 5, Lesson 8.)

**Grade 8 Unit 7**

Lesson 8

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