Tracking Two Reactants in a Mixed Ore Model

Base your answers on the information provided and your knowledge of chemistry. Use the 2025 Chemistry Reference Tables as needed.

A mineral display models two independent reactions. In the first, each P unit uses two reagent units and yields one blue product. In the second, each Q unit uses three reagent units and yields one green product. The display records products separately. No other process uses the reagent.

Quantity	**Recorded count (model units)**
Reagent supplied	50
Blue product made	8
Green product made	10

1 How many reagent units were used to make the blue product?

(1) 4

(2) 8

(3) 16

(4) 24

2 Calculate the reagent remaining after both reactions. Use the two different ratios. [1]

Answer and work

3 A simpler detector reports only 18 product units. Explain why that number alone cannot establish how much reagent remains. Give a second possible blue and green count. [1]

Answer and work

The next sample makes the same number of product units in total, but three product units switch from blue to green.

4 Find the least reagent count that allows the new product record. Explain how it compares with the first supply. [1]

Answer and work