Assessment : Section C Checkpoint

Problem 1

Goals Assessed

- Multiply and divide to solve real-world and mathematical problems involving area and volume.

Statement

Kansas and South Dakota both have rectangular shapes. Kansas is 660 km long and 343 km wide. South Dakota is 610 km long and 340 km wide.

1. Is the area of Kansas greater than or less than 200,000 square kilometers? Explain or show your reasoning.
2. Explain why 200,000 square kilometers is a good estimate for the area of South Dakota.

Solution

Sample responses:

1. Greater. I know $600 \times 300 = 180{,}000$ and then 600×40 is more than 20,000 so that's already more than 200,000.
2. South Dakota is a little more than 600 km long and 300 km wide. I know $3 \times 600 = 1{,}800$ and then 100 times more is $180{,}000$ so $200{,}000$ is a good estimate.

Problem 2

Goals Assessed

- Multiply and divide to solve real-world and mathematical problems involving area and volume.

Statement

The back of a garbage truck is 23 feet long, 8 feet wide, and 12 feet tall. How many loads of trash from the garbage truck will it take to fill a 40 foot by 9 foot by 8 foot storage container? Explain or show your reasoning.

Solution

2
Sample response: Each set of side lengths has an 8 so I can compare 23×12 to 40×9. I know $23 \times 12 = 276$ and $40 \times 9 = 360$. So one load of trash is not enough but two loads are.