

Marvelous Meaningful Monthly Math

Sponsored by

Central Area Tech Prep, Mitchell Technical Institute, and Bridges

Agriculture, Food and Natural Resources December

Career – Food Inspector

Math Activity

According to Lee Foster, an inspection manager, mathematics are used to calculate ingredient levels in feed and food products. Math skills are essential, says Foster, "when we're dealing with vitamin addition, when we're looking at feed formulations, [and] when we're looking at label formulations."

Food inspection requires many different types of calculations. Let's try one.

Part A

You're a food inspector working at a dockside customs port. A shipment of tomato plants, valued at \$1,700, is coming up from South America. After you've inspected the food products, you decide to let them in the country. You charge a fee of \$13 per inspection on shipments worth more than \$1,600. On top of this you must charge a 14 percent tax on the \$13. How much will it cost for this shipment to pass through the border?

Part B

Next, you inspect a shipment of 2 cows from Eastern Europe. The fee for an import permit for each cow is \$35. Because they're coming from a different continent, you suggest quarantine. It costs \$100 per cow for the approval of a quarantine site, an extra \$35 each to inspect the cows, and another \$130 per cow to oversee the quarantine period. How much does it cost to try and import these cows?

Name _____ School _____ Teacher _____

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Solution

You're calculating some import costs for various products -- cows and tomatoes!

Part A

You're a food inspector looking at a shipment of tomato plants with a value of \$1,700. You charge \$13 per shipment, plus a 14 percent tax on the \$13.

Tax: $\$13 \times 0.14 = \1.82

Add the tax to the \$13 service charge:

$\$13 + \$1.82 = \$14.82$

The tomato shipper must pay \$14.82 to have the plants inspected.

Part B

Next, you inspect a shipment of 2 cows from Eastern Europe. The fee for an import permit for each cow is \$35 -- and it costs \$100 per cow for the approval of quarantine, and \$130 per cow to oversee the quarantine period. Finally, it costs \$35 each to inspect the cows.

Permits: $\$35 \times 2 = \70 for permits

Quarantine approval: $\$100 \times 2 = \200

Inspection: $\$35 \times 2 = \70

Quarantine fee: $\$130 \times 2 = \260

Total: $\$70 + \$200 + \$70 + \$260 = \$600$

It costs \$600 to quarantine the cows.