Name(s)_____

THE LONG HAUL
Freight Worksheet

Product

Apples

Rail Car

Refrigerated Box Car

Shipping Information

7,500 cases
Case: 23 ½" L x 15 ½" W x 11" H
Pallet Dimensions: 40" L x 48" W
Cases per pallet: 30
Cases per layer: 6

Apple Freight Questions

How many pallets will fit into the rail car? (Determine the dimensions of a pallet stacked six layers high. Then determine how many fit lengthwise — and widthwise — and how many can be stacked on top of one another. Consider all possible configurations.) Additional space is provided on the next page.

Conversions

1 oil drum = 42 gallons

1 cubic foot = 7.5 gallons

1 cubic yard = 202 gallons

1 cubic yard = 27 cubic feet

1 cubic foot = 1,728 cubic inches

1 standard pallet (loaded) = 40" L x 48" W x 48" H (some products may be stacked higher)

Apple Freight
Questions (continued)

Conversions

1 oil drum = 42 gallons

1 cubic foot = 7.5 gallons

1 cubic yard = 202 gallons

1 cubic yard = 27 cubic feet

1 cubic foot = 1,728 cubic inches

1 standard pallet (loaded) =
40" L x 48" W x 48" H
(some products may be
stacked higher)

Apple Freight Questions (continued)

Conversions

1 oil drum = 42 gallons

1 cubic foot = 7.5 gallons

1 cubic yard = 202 gallons

1 cubic yard = 27 cubic feet

1 cubic foot = 1,728 cubic inches

1 standard pallet (loaded) = 40" L x 48" W x 48" H (some products may be stacked higher)

How many rail cars will be needed to ship all the pallets?

How many legs will each car of apples travel? (A leg is one trip between stops. This information is provided in the Train Route. The first leg is from Boston to Newark.)

How much will it cost to ship the apples?

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THE LONG HAUL
Freight Worksheet

Product

Molded Dashboard Covers

Rail Car

Covered Box Car
NOTE: This car comes in two sizes. You will need to do the math for both to decide which is less expensive to use.

Shipping Information

500 pallets
Loaded Pallet Dimensions: 40" L x 48" W x 48" H

Molded Dashboard Cover Freight Questions

How many pallets will fit into a rail car? (The covered box car comes in two sizes. You will need to do the math for both to decide which is less expensive.) Additional space is provided on the following page.

Conversions

1 oil drum = 42 gallons

1 cubic foot = 7.5 gallons

1 cubic yard = 202 gallons

1 cubic yard = 27 cubic feet

1 cubic foot = 1,728 cubic inches

1 standard pallet (loaded) =
40" L x 48" W x 48" H
(some products may be
stacked higher)

Molded Dashboard Cover Freight Questions (continued)

Conversions

1 oil drum = 42 gallons

1 cubic foot = 7.5 gallons

1 cubic yard = 202 gallons

1 cubic yard = 27 cubic feet

1 cubic foot = 1,728 cubic inches

1 standard pallet (loaded) =
40" L x 48" W x 48" H
(some products may be
stacked higher)

Molded Dashboard Cover Freight Questions (continued)

Conversions

1 oil drum = 42 gallons

1 cubic foot = 7.5 gallons

1 cubic yard = 202 gallons

1 cubic yard = 27 cubic feet

1 cubic foot = 1,728 cubic inches

1 standard pallet (loaded) = 40" L x 48" W x 48" H (some products may be stacked higher)

How many rail cars will be needed to ship the pallets?

How many legs will each car travel? (A leg is one trip between stops. The first leg is from Boston to Newark. This information is provided in Train Route.)

What is the cost to ship the molded dashboard covers?

THE LONG HAUL

Freight Worksheet

Product

Road Salt

Rail Car

Covered Hopper

Shipping Information

200 tons
2,160 lbs. per yd^3 of salt

Rail Car Questions

What are the dimensions of the rail car?

Conversions

1 oil drum = 42 gallons

1 cubic foot = 7.5 gallons

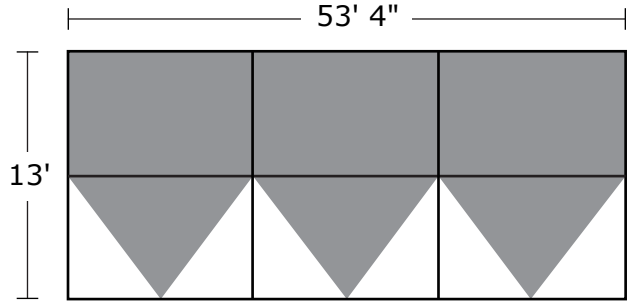
1 cubic yard = 202 gallons

1 cubic yard = 27 cubic feet

1 cubic foot = 1,728 cubic inches

1 standard pallet (loaded) = 40" L x 48" W x 48" H (some products may be stacked higher)

The diagram shows the compartments in a Covered Hopper Car.



Determine the dimensions of all three top compartments. (Assume that the space taken by the dividers is too small to consider.)

Rail Car Questions (continued)

Conversions

1 oil drum = 42 gallons

1 cubic foot = 7.5 gallons

1 cubic yard = 202 gallons

1 cubic yard = 27 cubic feet

1 cubic foot = 1,728 cubic inches

1 standard pallet (loaded) = 40" L x 48" W x 48" H (some products may be stacked higher)

What is the volume, in cubic feet, of all three top compartments? (Hint: First convert each measurement to decimals, in feet.)

What is the volume, in cubic yards, of all three top compartments?

What is the volume, in cubic feet, of all three bottom compartments?

Rail Car Questions (continued)

Conversions

1 oil drum = 42 gallons

1 cubic foot = 7.5 gallons

1 cubic yard = 202 gallons

1 cubic yard = 27 cubic feet

1 cubic foot = 1,728 cubic inches

1 standard pallet (loaded) = 40" L x 48" W x 48" H (some products may be stacked higher)

What is the volume, in cubic yards, of all three bottom compartments?

What is the total volume, in cubic yards, of all compartments (top and bottom)?

Road Salt Freight Questions

What is the volume, in cubic yards, of road salt being shipped?

On the basis of volume, how many rail cars are needed to transport the road salt?

Road Salt Questions (continued)

Conversions

1 oil drum = 42 gallons

1 cubic foot = 7.5 gallons

1 cubic yard = 202 gallons

1 cubic yard = 27 cubic feet

1 cubic foot = 1,728 cubic inches

1 standard pallet (loaded) = 40" L x 48" W x 48" H (some products may be stacked higher)

What is the weight of the freight?

What is the rail car weight limit? On the basis of weight, how many cars will be needed to transport the freight?

What is the cost of shipping the road salt?

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THE LONG HAUL
Freight Worksheet

Product

Barley

Rail Car

Covered Hopper

Shipping Information

2 full grain silos
Dimensions of grain silo: 26'9"H x 30'Diameter

Rail Car Questions

What are the dimensions of the rail car?

Conversions

1 oil drum = 42 gallons

1 cubic foot = 7.5 gallons

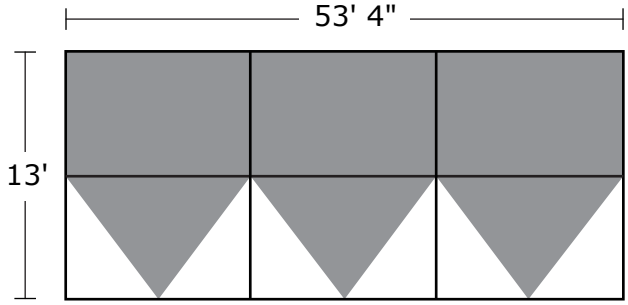
1 cubic yard = 202 gallons

1 cubic yard = 27 cubic feet

1 cubic foot = 1,728 cubic inches

1 standard pallet (loaded) = 40" L x 48" W x 48" H (some products may be stacked higher)

The diagram shows the compartments in a Covered Hopper Car.



Determine the dimensions of all three top compartments.

Rail Car Questions (continued)

Conversions

1 oil drum = 42 gallons

1 cubic foot = 7.5 gallons

1 cubic yard = 202 gallons

1 cubic yard = 27 cubic feet

1 cubic foot = 1,728 cubic inches

1 standard pallet (loaded) = 40" L x 48" W x 48" H (some products may be stacked higher)

What is the volume, in cubic feet, of all three top compartments? (Assume that the space taken by the dividers is too small to consider.)

What is the volume, in cubic feet, of all three bottom compartments?

What is the total volume, in cubic feet, of all compartments (top and bottom)?

Barley Freight Questions

Conversions

1 oil drum = 42 gallons

1 cubic foot = 7.5 gallons

1 cubic yard = 202 gallons

1 cubic yard = 27 cubic feet

1 cubic foot = 1,728 cubic inches

1 standard pallet (loaded) = 40" L x 48" W x 48" H (some products may be stacked higher)

How many cubic feet of barley need to be shipped?

How many rail cars are needed to transport the barley?

What is the cost of shipping the barley?

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THE LONG HAUL
Freight Worksheet

Product	**Liquid Fertilizer**
Rail Car	**Tanker**
Shipping Information	**140,000 gallons**

Liquid Fertilizer Freight Questions

On the basis of volume, how many rail cars are needed to transport the liquid fertilizer? (Determine the volume of both the rail car and the liquid fertilizer.)

Conversions

1 oil drum = 42 gallons

1 cubic foot = 7.5 gallons

1 cubic yard = 202 gallons

1 cubic yard = 27 cubic feet

1 cubic foot = 1,728 cubic inches

1 standard pallet (loaded) = 40" L x 48" W x 48" H (some products may be stacked higher)

Liquid Fertilizer Freight Questions (continued)

What is the cost of shipping the liquid fertilizer?

Conversions

1 oil drum = 42 gallons

1 cubic foot = 7.5 gallons

1 cubic yard = 202 gallons

1 cubic yard = 27 cubic feet

1 cubic foot = 1,728 cubic inches

1 standard pallet (loaded) = 40" L x 48" W x 48" H (some products may be stacked higher)

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THE LONG HAUL
Freight Worksheet

Product	**Plastic Chemicals**
Rail Car	**Tanker Car**
Shipping Information	**160,000 gallons**

Plastic Chemical Freight Questions

On the basis of volume, how many rail cars are needed to transport the plastic chemicals?

Conversions

1 oil drum = 42 gallons

1 cubic foot = 7.5 gallons

1 cubic yard = 202 gallons

1 cubic yard = 27 cubic feet

1 cubic foot = 1,728 cubic inches

1 standard pallet (loaded) = 40" L x 48" W x 48" H (some products may be stacked higher)

Plastic Chemical Freight Questions (continued)

What is the cost of shipping the plastic chemicals?

Conversions

1 oil drum = 42 gallons

1 cubic foot = 7.5 gallons

1 cubic yard = 202 gallons

1 cubic yard = 27 cubic feet

1 cubic foot = 1,728 cubic inches

1 standard pallet (loaded) = 40" L x 48" W x 48" H (some products may be stacked higher)

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THE LONG HAUL
Freight Worksheet

Product

Fresh-Cut Logs

Rail Car

Plain Gondola

Shipping Information

20 Fresh-Cut Logs
65'7" L x 3' Diameter

Fresh-Cut Log Freight Questions

The logs are too long to lie flat in the car. The logs cannot extend above the top of the car. Will the logs fit? (Hint: change the measurements to decimals, in feet, and use the Pythagorean Theorem.)

Conversions

1 oil drum = 42 gallons

1 cubic foot = 7.5 gallons

1 cubic yard = 202 gallons

1 cubic yard = 27 cubic feet

1 cubic foot = 1,728 cubic inches

1 standard pallet (loaded) =
40" L x 48" W x 48" H
(some products may be
stacked higher)

Fresh-Cut Log Freight Questions (continued)

Conversions

1 oil drum = 42 gallons

1 cubic foot = 7.5 gallons

1 cubic yard = 202 gallons

1 cubic yard = 27 cubic feet

1 cubic foot = 1,728 cubic inches

1 standard pallet (loaded) = 40" L x 48" W x 48" H (some products may be stacked higher)

How many rows of logs fit without extending above the top of the car?

How many logs can fit in each layer?

How many cars are needed to transport the logs?

What is the cost of shipping the logs?