Numbers and Operations: Railroad Conductor

Union Pacific Railroad

Job Description: Moving freight trains from Nampa, Idaho, to LaGrande, Oregon

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Problem:

Today's freight train is mixed freight for transport from Chicago to Portland. I need to determine the speed I will be allowed to travel. To do this, I need to determine tons per operative brake (TOBs). If under 80 TOBs, I can go 70 mph. If between 80 - 100 TOBs, I can travel at 65 mph. If over 100 TOBs, —60 mph.

Train data/information: The train is 6110 feet long consisting of 45 cars loaded with freight and 18 empty cars. The total weight is 5813 tons. Each car has 1 operative brake.

Total operative brakes: 63

What speed can I travel?

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Solution:

TOB = x

x = 5813 ÷ 63

If x < 80, speed is 70 miles per hour

If x > 80 but < 100, speed is 65 miles per hour

If x > 100 then speed is 60 miles per hour.

On today's train, x is 92.27. Thus, I can travel 65 miles per hour.