



Let's break it down step by step!

Total cubic yards of soil to be removed:

The trench dimensions are **50 feet long × 30 feet wide × 20 feet deep**. To find the volume in cubic yards:

- Convert feet to yards:
 - **50 feet = 16.67 yards**
 - **30 feet = 10 yards**
 - **20 feet = 6.67 yards**

Now multiply: **$16.67 \times 10 \times 6.67 = 1,112$ cubic yards**

So, Jack must remove **1,112 cubic yards of soil**.

Total bucket loads required:

Jack's **Komatsu PC800** excavator removes **2 cubic yards** per bucket load. To find the total loads needed: **$1,112 \div 2 = 556$ bucket loads**.

Days required to complete the excavation:

Jack needs to clear **at least 200 cubic yards per day** to stay on schedule. So, the number of days required: **$1,112 \div 200 = 5.56$ days**, which rounds up to **6 full working days**.

Will he finish 600 cubic yards before the storm?

Jack can remove **200 cubic yards per day**. Before the **storm hits in 3 days**: **$200 \times 3 = 600$ cubic yards**

Yes! If he keeps up his pace, Jack will finish **exactly 600 cubic yards before the storm arrives**, preventing erosion risks.

Looks like Jack is on track! But if anything slows him down—equipment failure, tricky terrain—he might have to **increase his pace** or bring in extra help.