

Grade 8 - Using Linear Models to Predict - Test

Common Core 8.SP.A.3 · maths-pdf.fr/en/

Name: _____ Class: _____ Date: ____/____/____

This 20-point test checks linear models for data, interpreting slope and intercept, and making predictions (Common Core 8.SP.A.3). Work alone, show every step, and write each final answer clearly. You have 45 minutes. Calculators are not needed unless a question says so.

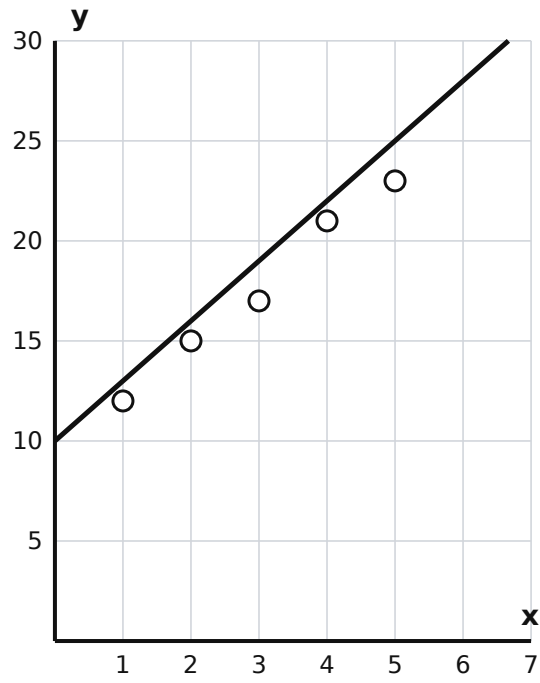
About this test

- Grade: Grade 8
- Chapter: Using Linear Models to Predict
- Standards: 8.SP.A.3
- Time: 45 minutes
- Total: 20 points

Question 1 - Interpret [3 pts]

A model for the cost y (dollars) of renting a kayak for x hours is $y = 7x + 5$. Interpret the slope and the intercept, and find the cost of 4 hours.

Question 2 - Equation from a graph [3 pts]



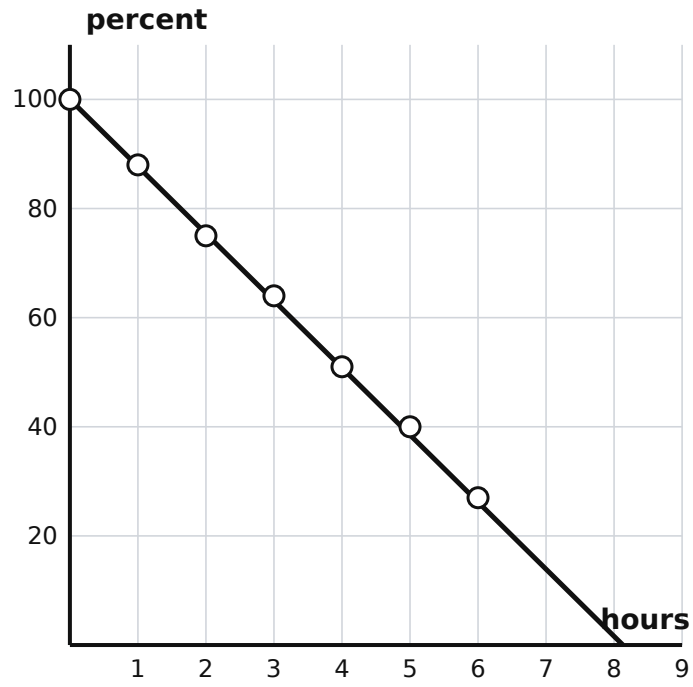
Trend line.

A trend line passes through $(0,10)$ and $(5,25)$. Write its equation.

Question 3 - Predict [2 pts]

Use $y = 3x + 10$ to predict y when $x = 8$. Is this interpolation or extrapolation if the data have x from 1 to 5?

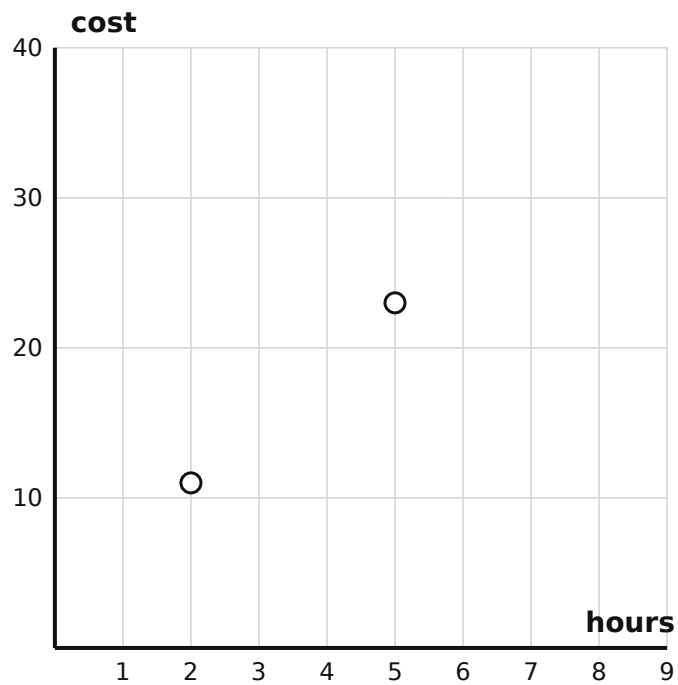
Question 4 - Find x [3 pts]



Battery model.

Use $y = -12.3x + 100$ to find after how many hours the battery reaches 50 percent. Round to the nearest tenth.

Question 5 - Two points [3 pts]



Two prices.

A scooter rental costs \\$11 for 2 hours and \\$23 for 5 hours. Assume a linear model. Write the equation and find the cost of 8 hours.

Question 6 - Meaning [2 pts]

A trend line for a hiker's distance from camp is $y = -2.5x + 10$ (miles after x hours). What does the x -value where $y = 0$ tell you? Find it.

Question 7 - Reasonable? [2 pts]

A model predicts that a 4-year-old tree will be 150 feet tall. Explain why you should be careful with this prediction.

Question 8 - Compare [2 pts]

Two models predict the cost of printing x posters: $y = 2x + 10$ and $y = 3x + 4$. For which x do both models give the same cost?