

Grade 8 - Using Linear Models to Predict - Quiz

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

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

Pick the best answer for each of the 10 questions about linear models for data, interpreting slope and intercept, and making predictions (Common Core 8.SP.A.3). Read each question carefully, then read the explanation to learn from any mistake.

Grade 8 · Common Core State Standards: **8.SP.A.3**

Questions

Question 1

In $y = 4x + 9$, the slope 4 means

- A. y is 4 when x is 0
- B. x increases 4 for each 1 of y
- C. y increases 4 for each 1-unit increase in x
- D. y is 9 when x is 4

Question 2

In $y = 4x + 9$, the y-intercept 9 means

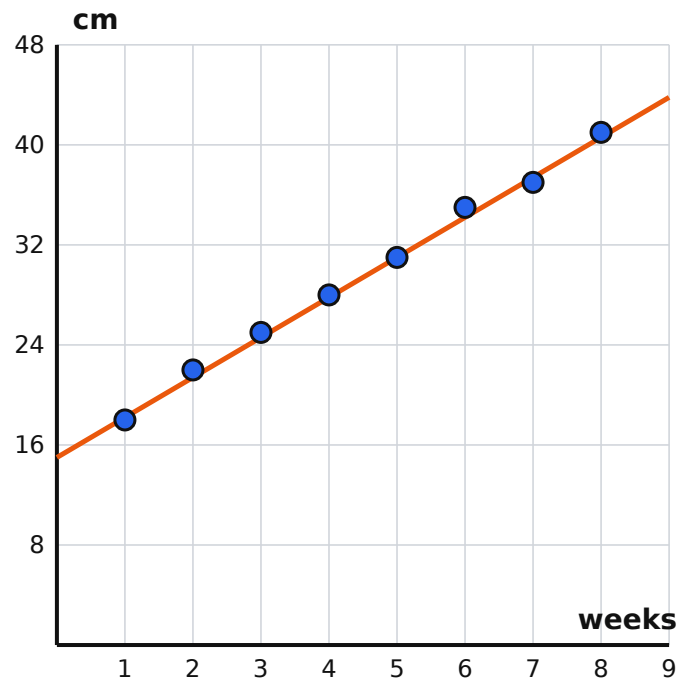
- A. the predicted y when x is 0
- B. the rate of change
- C. the predicted x when y is 0
- D. the largest value of y

Question 3

A trend line is $y = 2.5x + 10$. What is the prediction for $x = 6$?

- A. 15
- B. 16
- C. 40
- D. 25

Question 4

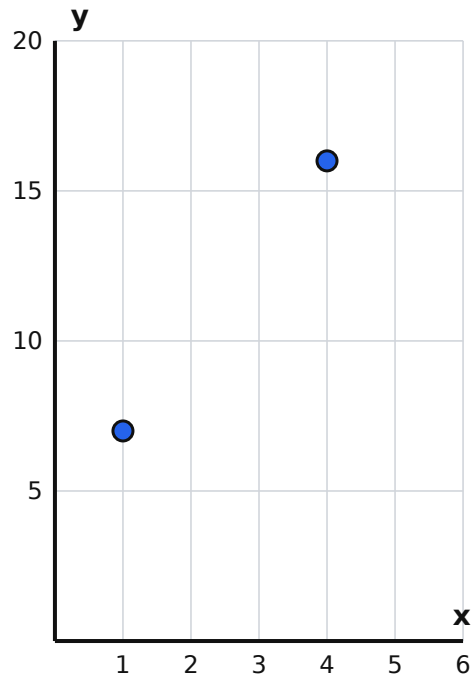


Plant model.

The trend line is $y = 3.2x + 15$. About how tall is the plant predicted to be at week 5?

- A. 31 cm
- B. 16 cm
- C. 15 cm
- D. 35 cm

Question 5



Two points on a line.

A line passes through (1, 7) and (4, 16), shown on the graph. What is the slope?

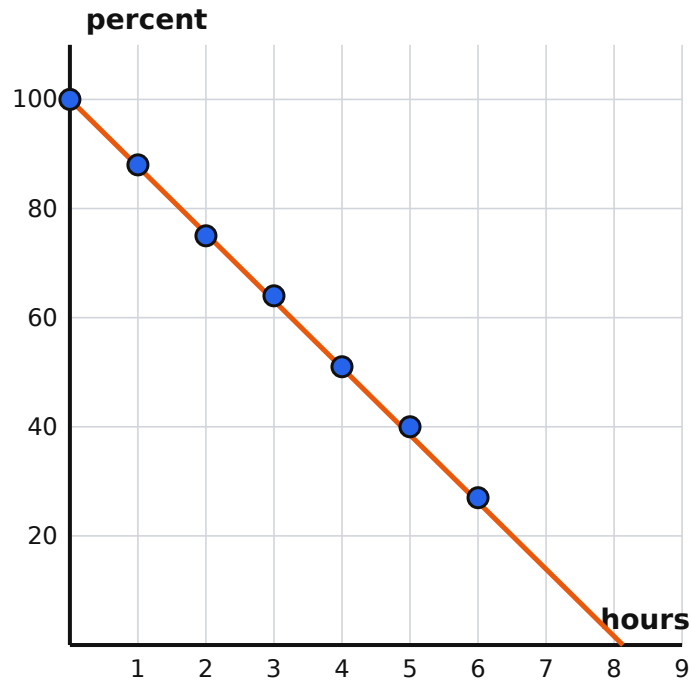
- A. 3
- B. 9
- C. 2
- D. 23

Question 6

A line through (2, 11) with slope 3 has intercept

- A. 8
- B. 6
- C. 17
- D. 5

Question 7



Battery.

What does the negative slope of the battery trend line mean?

- A. the charge rises as hours increase
- B. the charge falls as hours increase
- C. the battery starts at 0 percent
- D. the battery never runs out

Question 8

Predicting far outside the range of the data is called

- A. interpolation
- B. association
- C. extrapolation
- D. clustering

Question 9

The model $y = 3x + 2$ predicts $y = 20$. What is x ?

- A. 22
- B. 6
- C. 18
- D. 9

Question 10

A trend line has slope 0.5 for height in feet versus age in years. What does it mean?

- A. 0.5 ft at age 0
- B. about 0.5 ft of growth per year
- C. 0.5 years per foot
- D. the person is 0.5 ft tall

Answers

1. **C** - The slope is the change in y per 1 unit of x .
2. **A** - The intercept is where the line crosses the y -axis.
3. **D** - $2.5 \times 6 + 10 = 25$.
4. **A** - $3.2 \times 5 + 15 = 31$.
5. **A** - $(16 - 7)/(4 - 1) = 3$.
6. **D** - $11 = 6 + b$ gives $b = 5$.
7. **B** - A negative slope means y decreases as x increases.
8. **C** - Extrapolation can be unreliable.
9. **B** - $20 = 3x + 2$, so $x = 6$.
10. **B** - Slope is change in y per year.

Remember

- Slope: the predicted change in y per 1-unit increase in x , with units.
- Intercept: the predicted y when $x = 0$, if that is meaningful.
- Find the equation from two points on the trend line.
- Predict by substituting x ; find x from a target y by solving an equation.
- Be cautious when predicting far outside the data range.