

Grade 8 - Linear Functions as Models - Quiz

Common Core 8.F.B.4, 8.F.B.5 · maths-pdf.fr/en/

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

Pick the best answer for each of the 10 questions about linear functions as models, rate of change, initial value and graph descriptions (Common Core 8.F.B.4 and 8.F.B.5). Read each question carefully, then read the explanation to learn from any mistake.

Grade 8 · Common Core State Standards: **8.F.B.4, 8.F.B.5**

Questions

Question 1

In $y = 7x + 3$, what is the initial value?

- A. 7
- B. 10
- C. 3
- D. 0

Question 2

What is the rate of change in $y = 7x + 3$?

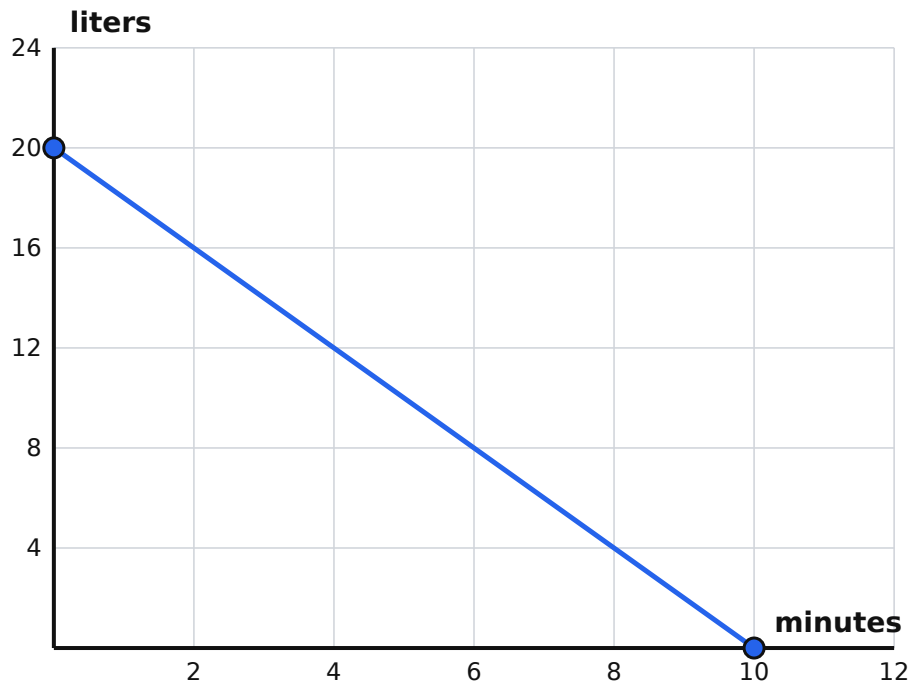
- A. 3
- B. 7
- C. 10
- D. 21

Question 3

A line passes through (0,5) and (2,11). What is its equation?

- A. $y = 3x + 5$
- B. $y = 6x + 5$
- C. $y = 3x + 11$
- D. $y = 2x + 5$

Question 4



Water left in a bucket.

What does the slope of the line mean?

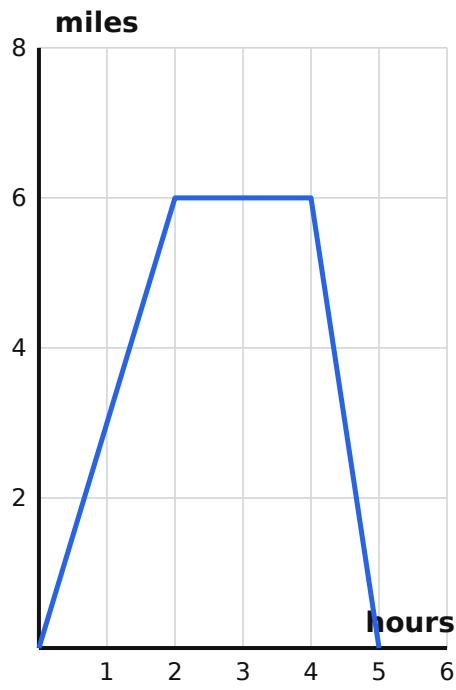
- A. The bucket holds 10 liters
- B. The bucket gains 2 liters each minute
- C. The bucket loses 2 liters each minute
- D. The bucket started with 2 liters

Question 5

A tank has 50 gallons and loses 2 gallons per minute. Which function models it?

- A. $g = 50 - 2m$
- B. $g = 50m - 2$
- C. $g = 2m + 50$
- D. $g = 2 - 50m$

Question 6



A trip.

What happens between hour 2 and hour 4?

- A. The distance stays constant
- B. The distance increases
- C. The distance decreases
- D. The trip ends

Question 7

A table has the points (1, 7), (3, 13), (5, 19). What is the rate of change?

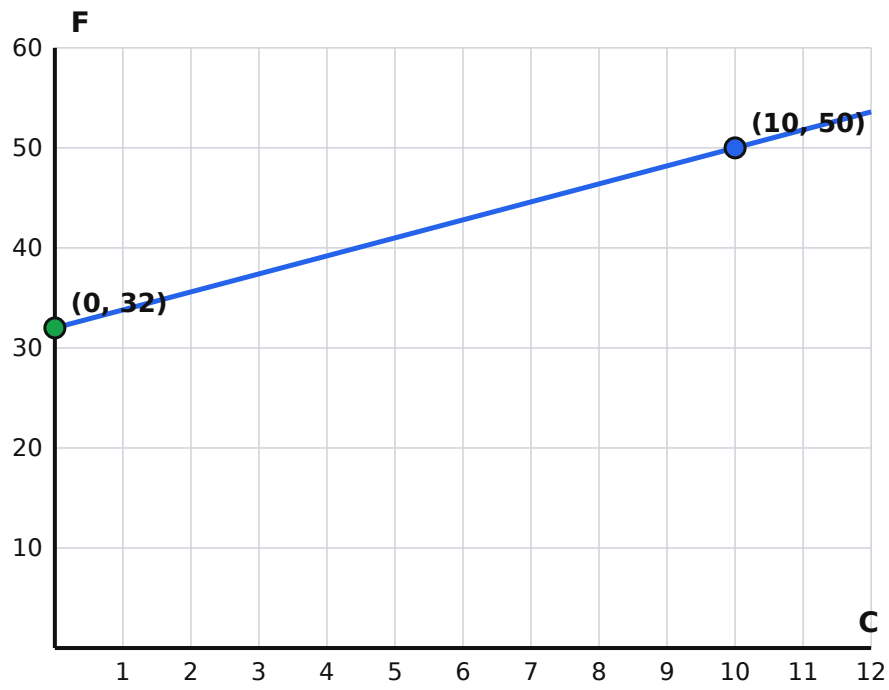
- A. 6
- B. 7
- C. 2
- D. 3

Question 8

Which graph is nonlinear?

- A. a straight line rising
- B. a curve rising faster and faster
- C. a straight line falling
- D. a horizontal line

Question 9



Fahrenheit against Celsius.

What is the rate of change shown?

- A. 18 °F per 1 °C
- B. 32 °F per 1 °C
- C. 0.56 °F per 1 °C
- D. 1.8 °F per 1 °C

Question 10

A line has equation $y = -3x + 12$. Where does it cross the x-axis?

- A. $x = 12$
- B. $x = 4$
- C. $x = -4$
- D. $x = 36$

Answers

1. **C** - The initial value is y when $x = 0$, which is 3.
2. **B** - The rate of change is the slope, 7.
3. **A** - Rate = $6/2 = 3$, and the intercept is 5.
4. **C** - The line falls 2 units for each 1 minute, so the rate is -2 liters per minute.
5. **A** - Start at 50 and subtract 2 for each minute.
6. **A** - A flat segment means no change in distance.
7. **D** - $(13 - 7)/(3 - 1) = 3$. Using the y -change alone gives 6.
8. **B** - Only a curve has a changing rate of change.
9. **D** - $(50 - 32)/(10 - 0) = 1.8$.
10. **B** - Set $y = 0$: $3x = 12$, so $x = 4$.

Remember

- Rate of change $m = \frac{\text{change in } y}{\text{change in } x}$; initial value b is y when $x = 0$.
- Build a model: find m , solve for b with one point, write $y = mx + b$.
- A negative rate means the quantity decreases.
- A flat segment has rate 0; a curve means the rate is not constant.
- Always say what m and b mean in the situation, with units.