

SAT Bootcamp WS1 Linear Functions

Total Questions: 21

1. (SAT-2026-March-Asia-FormA-Math-6)

The function f is defined by the equation $f(x) = 380x$. What is the value of $f(10)$?

2. (SAT-Math-2025-December-Asia-FormA-1)

The function f is defined by the equation $f(x) = 5x - 6$. What is the value of $f(x)$ when $x = 10$?

3. (SAT-2025-November-Asia-FormB(module2)-2)

A line passes through the points $(4, 7)$ and $(18, 28)$ in the xy -plane. What is the slope of the line?

4. (SAT-2025-November-Asia-FormB-8)

The function f is defined by $f(x) = 6x - \frac{1}{7}$. What is the y -intercept of the graph of $y = f(x)$ in the xy -plane?

- A. $(0, -\frac{1}{7})$
- B. $(0, -6)$
- C. $(0, 6)$
- D. $(0, 7)$

5. (SAT-2025-November-Asia-A7)

The function f is defined by $f(x) = 3x - \frac{1}{4}$. What is the y -intercept of the graph of $y = f(x)$ in the xy -plane?

- A. $(0, -\frac{1}{4})$
- B. $(0, -3)$
- C. $(0, 3)$
- D. $(0, 4)$

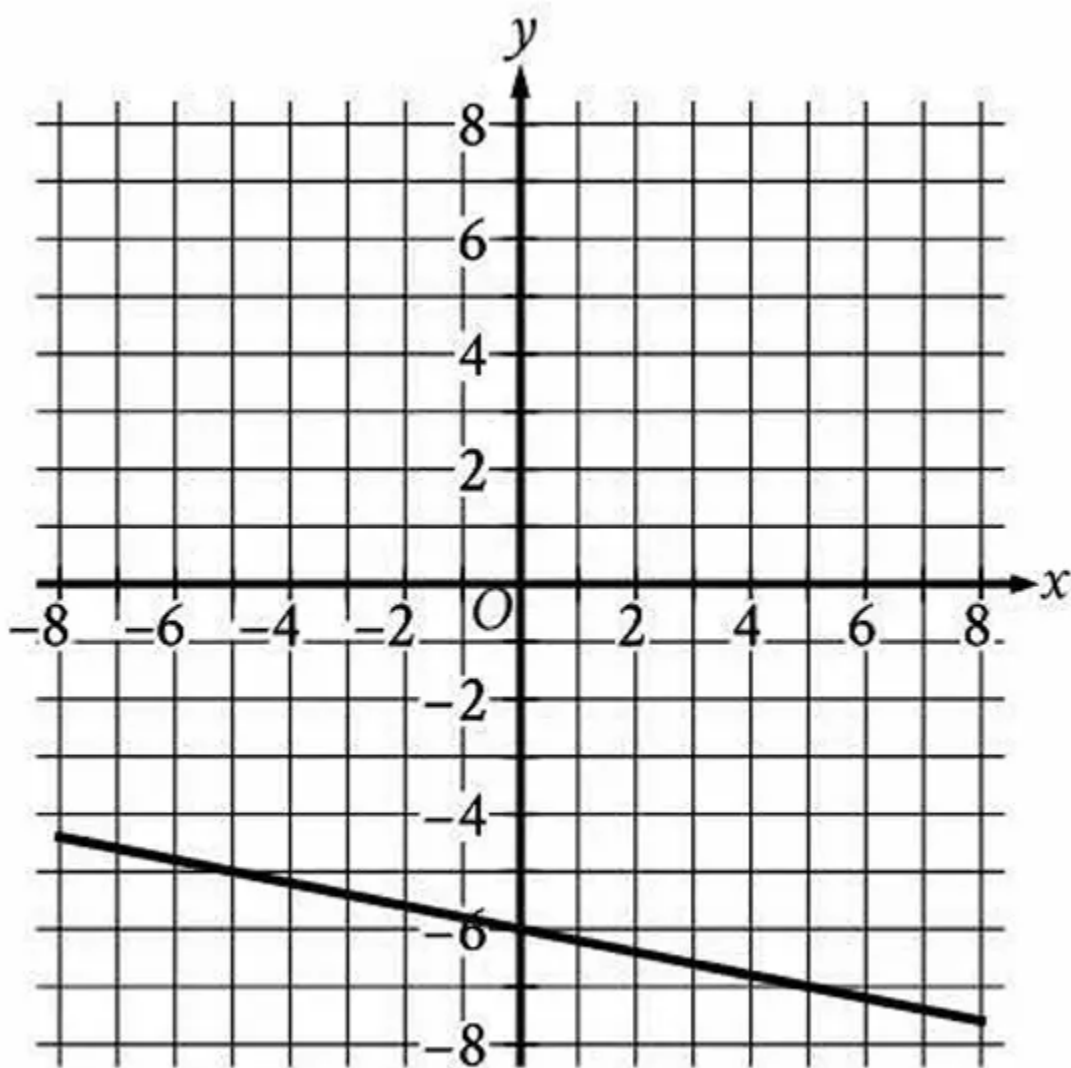
6. (af2ba762)

The functions f and g are defined as $f(x) = \frac{1}{4}x - 9$ and $g(x) = \frac{3}{4}x + 21$. If the function h is defined as $h(x) = f(x) + g(x)$, what is the x -coordinate of the x -intercept of the graph of $y = h(x)$ in the xy -plane?

7. (SAT-2025-ASIA-E4)

The function f is defined by $f(x) = 8(2x + 2)$. For what value of x does $f(x) = 80$?

- A. 4
- B. 6
- C. 10
- D. 39

8. (SAT-2025-NA-B1)

The graph of the linear function f is shown, where $y = f(x)$. What is the y-intercept of the graph of f ?

- A. (0, 6)
- B. (0, 0)
- C. (0, -4)
- D. (0, -6)

9. (SAT-2024-Select32)

Function f is defined by $f(x) = -ax + b$, where a and b are constants. In the xy -plane, the graph of $y = f(x) - 12$ has a y -intercept at $(0, -\frac{75}{7})$. The product of a and b is $\frac{320}{7}$. What is the value of a ?

10. (SAT-2025-November-Asia-FormB(module2)-7)

The function f is defined by $f(x) = \frac{x+11}{5}$, and $f(a) = -15$, where a is a constant. What is the value of a ?

A. -86

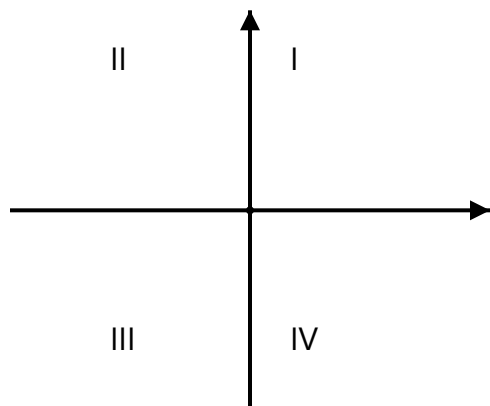
B. -64

C. $-\frac{64}{5}$

D. $-\frac{4}{5}$

11. (SAT-Math-2025-December-Asia-FormA(module2)-3)

The figure shows the xy -plane with the quadrants labeled. The graph of a linear function h (not shown), where $y = h(x)$, is a line completely contained in only quadrants I and II of the xy -plane. Which of the following could define the function h ?



A. $h(x) = 16x + 16$

B. $h(x) = 16x$

C. $h(x) = 16$

D. $h(x) = -4x + 12$

12. (SAT-2026-March-Asia-FormA-Math(module2)-19)

The function f is defined by $f(x) = 3x - 7$. If $f(a + 1) = 2a$, what is the value of a ?

A) -1

B) 1

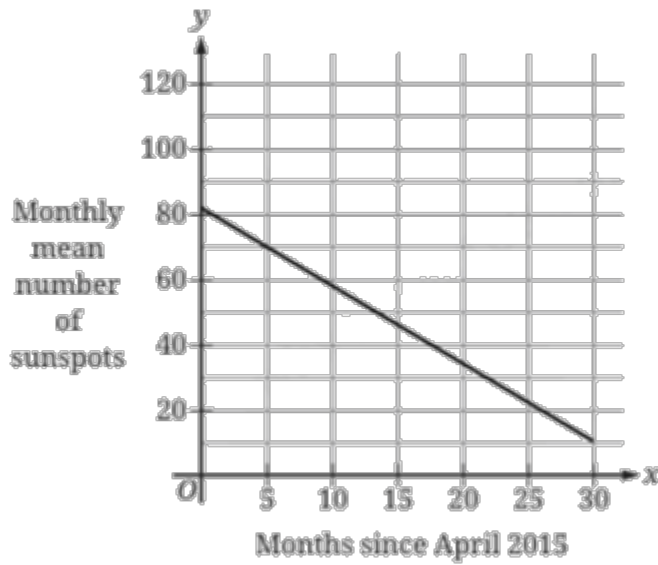
C) 5

D) 6

13. (0bd33265)

For the function f , if $f(3x) = x - 6$ for all values of x , what is the value of $f(6)$?

- A. -6
- B. -4
- C. 0
- D. 2

14. (SAT-2026-March-Asia-FormA-Math(module2)-11)

Sunspots are temporary dark spots on the surface of the Sun. The monthly mean number of sunspots for one calendar month is the average of the number of sunspots observed each day during the month. The linear function s models the monthly mean number of sunspots as a function of the number of months, x , since April 2015, where $0 \leq x \leq 30$. The graph of $y = S(x)$ is shown.

Which of the following is the best estimate for the monthly mean number of sunspots in April 2016?

- A) 23
- B) 33
- C) 43
- D) 53

15. (SAT-2025-December-NA-FormA-Math(module2)-14)

A dance studio is offering a promotion where the first class is free, the second class is half off the regular price, and the remaining classes are regularly priced. If the regular price of a class is \$29.60, which function f gives the total cost, in dollars, of x classes taken using this promotion, where $x \geq 2$?

- A. $f(x) = 29.60(x - 1) + 14.80$
- B. $f(x) = 29.60(x - 2) + 14.80$
- C. $f(x) = 29.60(x - 1) + 14.80(x - 2)$
- D. $f(x) = 29.60(x - 2) + 14.80(x - 1)$

16. (SAT-Math-2025-December-Asia-FormD-10)

As part of a science experiment on evaporation, Ella measured the height of water in a glass over a period of time. The function $f(x) = 32 - 0.21x$ gives the estimated height, in centimeters (cm), of the water in the glass x days after the start of the experiment. Which of the following is the best interpretation of 32 in this context?

- A) The estimated height, in cm, of the water at the start of the experiment
- B) The estimated height, in cm, of the water at the end of the experiment
- C) The estimated change in the height, in cm, of the water each day
- D) The estimated number of days for all the water to evaporate

17. (SAT-2025-December-NA-FormA-Math(module2)-4)

The given function f models the number of marine nematode species at a North Atlantic Ocean site with a latitude of x degrees north $^{\circ}N$, where $10 \leq x \leq 60$. Which statement is the best interpretation of " $f(37.9)$ is approximately equal to 93" in this context?

- A. At a North Atlantic Ocean site with a latitude of $10^{\circ}N$, the estimated number of marine nematode species is approximately 37.9.
- B. At a North Atlantic Ocean site with a latitude of $37.9^{\circ}N$, the estimated number of marine nematode species is approximately 93.
- C. At a North Atlantic Ocean site with a latitude of $60^{\circ}N$, the estimated number of marine nematode species is approximately 93.
- D. At a North Atlantic Ocean site with a latitude of $93^{\circ}N$, the estimated number of marine nematode species is approximately 37.9.

18. (SAT-2025-November-Asia-FormB(module2)-13)

A beekeeper's initial observation of the population of a certain bee colony was 1,800 bees. The beekeeper set a goal to increase the population to 3,300 bees. The beekeeper uses a model that predicts the population of this bee colony begins at 1,800 and increases by 120 bees per week in the first two weeks after the initial observation, and then increases by 180 bees per week until the beekeeper's goal is reached. According to this model, at the end of week w after the initial observation, where $w > 2$, which of the following functions gives the predicted number of bees still needed to reach the beekeeper's goal?

- A. $p(w) = 3,300 - 180w$
- B. $p(w) = 3,180 + 180w$
- C. $p(w) = 1,620 - 180w$
- D. $p(w) = -120 + 180w$

19. (SAT-2025-November-NA-FormA-Math(module1)-22)

The function $f(x)$ is defined as 29 more than 6 times a number x . If $y = f(x)$ is graphed in the xy -plane, what is the best interpretation of the x -intercept?

- A. When $f(x) = 0$, the number is $-29 \div 6$.
- B. When the number is 0, $f(x) = 29$.
- C. The value of $f(x)$ increases by 1 for each increase of 6 in the value of the number.
- D. For each increase of 1 in the value of the number, $f(x)$ increases by 6.

20. (SAT-Math-2025-December-Asia-FormA(module2)-7)

$$H = 2.419L + 22.83$$

A group of biology students conducted an experiment to study the relationship between a person's femur length and the person's height. The given equation describes the relationship between the length L , in inches, of a student's femur and the student's estimated height H , in inches, for the students in the group. Which of the following is the best interpretation of 2.419 in this context?

- A) The increase in a student's estimated height, in inches, for each increase of 1 inch in the student's femur length
- B) The increase in a student's femur length, in inches, for each increase of 1 inch in the student's estimated height
- C) The increase in a student's femur length, in inches, for each increase of 22.83 inches in the student's estimated height
- D) The estimated height, in inches, of a student whose femur has a length of L inches

21. (SAT-2026-March-Asia-FormA-Math-21)

Line k contains the points $(-3, 60)$, $(v, 0)$, and $(576, v)$. What is the value of v ?