
Digital SAT[®]

Sample Questions and

Math

Math question 1

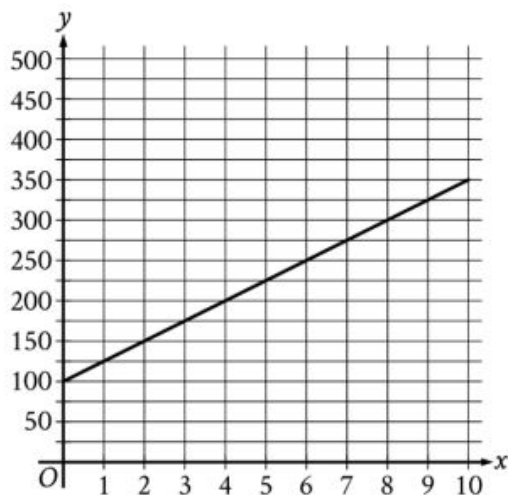
If $f(x) = x + 7$ and $g(x) = 7x$, what is the value of $4f(2) - g(2)$?

- A) -5
- B) 1
- C) 22
- D) 28

Math question 2

The y -intercept of the graph of $y = -6x - 32$ in the xy -plane is $(0, y)$. What is the value of y ?

Math question 3



The graph of the function f , where $y = f(x)$, models the total cost y , in dollars, for a certain video game system and x games. What is the best interpretation of the slope of the graph in this context?

- A) Each game costs \$25.
- B) The video game system costs \$100.
- C) The video game system costs \$25.
- D) Each game costs \$100.

Math question 4

$$y < -4x + 4$$

Which point (x, y) is a solution to the given inequality in the xy -plane?

- A) $(2, -1)$
- B) $(2, 1)$
- C) $(0, 5)$
- D) $(-4, 0)$

Math question 5

Figure A and figure B are both regular polygons. The sum of the perimeter of figure A and the perimeter of figure B is 63 inches. The equation $3x + 6y = 63$ represents this situation, where x is the number of sides of figure A and y is the number of sides of figure B. Which statement is the best interpretation of 6 in this context?

- A) Each side of figure B has a length of 6 inches.
- B) The number of sides of figure B is 6.
- C) Each side of figure A has a length of 6 inches.
- D) The number of sides of figure A is 6.

Math question 6

Store A sells raspberries for \$5.50 per pint and blackberries for \$3.00 per pint. Store B sells raspberries for \$6.50 per pint and blackberries for \$8.00 per pint. A certain purchase of raspberries and blackberries would cost \$37.00 at store A or \$66.00 at store B. How many pints of blackberries are in this purchase?

- A) 12
- B) 8
- C) 5
- D) 4

Math question 7

$$g(x) = x^2 + 55$$

What is the minimum value of the given function?

- A) 3,025
- B) 110
- C) 55
- D) 0

Math question 8

The function h is defined by $h(x) = a^x + b$, where a and b are positive constants. The graph of $y = h(x)$ in the xy -plane passes through the points $(0, 10)$ and $\left(-2, \frac{325}{36}\right)$. What is the value of ab ?

- A) $\frac{1}{4}$
- B) $\frac{1}{2}$
- C) 54
- D) 60

Math question 9

$$(x - 1)^2 = -4$$

How many distinct real solutions does the given equation have?

- A) Exactly one
- B) Exactly two
- C) Infinitely many
- D) Zero

Math question 10

Which expression is equivalent to $\frac{4}{4x-5} - \frac{1}{x+1}$?

A) $\frac{9}{(x+1)(4x-5)}$

B) $\frac{3}{3x-6}$

C) $\frac{1}{(x+1)(4x-5)}$

D) $-\frac{1}{(x+1)(4x-5)}$

Math question 11

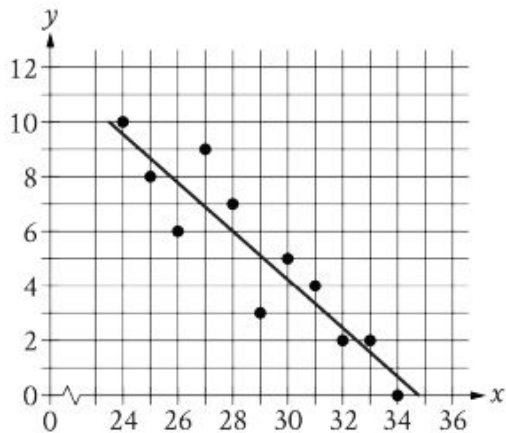
For the function f , $f(0) = 86$, and for each increase in x by 1, the value of $f(x)$ decreases by 80%. What is the value of $f(2)$?

Math question 12

In the xy -plane, a line with equation $2y = 4.5$ intersects a parabola at exactly one point. If the parabola has equation $y = -4x^2 + bx$, where b is a positive constant, what is the value of b ?

Math question 13

The scatterplot shows the relationship between two variables, x and y . A line of best fit for the data is also shown.



At $x = 32$, which of the following is closest to the y -value predicted by the line of best fit?

- A) 0.4
- B) 1.5
- C) 2.4
- D) 3.3

Math question 14

In a group, 40% of the items are red. Of all the red items in the group, 30% also have stripes. What percentage of the items in the group are red and have stripes?

- A) 10%
- B) 12%
- C) 70%
- D) 75%

Math question 15

The density of a certain type of wood is 353 kilograms per cubic meter. A sample of this type of wood is in the shape of a cube and has a mass of 345 kilograms. To the nearest hundredth of a meter, what is the length of one edge of this sample?

- A) 0.98
- B) 0.99
- C) 1.01
- D) 1.02

Math question 16

Two nearby trees are perpendicular to the ground, which is flat. One of these trees is 10 feet tall and has a shadow that is 5 feet long. At the same time, the shadow of the other tree is 2 feet long. How tall, in feet, is the other tree?

- A) 3
- B) 4
- C) 8
- D) 27

Math question 17

The length of a rectangle's diagonal is $5\sqrt{17}$, and the length of the rectangle's shorter side is 5. What is the length of the rectangle's longer side?

- A) $\sqrt{17}$
- B) 20
- C) $15\sqrt{2}$
- D) 400

Math question 18

A circle has center O , and points A and B lie on the circle. The measure of arc AB is 45° and the length of arc AB is 3 inches. What is the circumference, in inches, of the circle?

- A) 3
- B) 6
- C) 9
- D) 24