

Question ID 47cc6093

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Linear functions	

ID: 47cc6093

In the linear function h , $h(28) = 15$ and $h(26) = 22$. Which equation defines h ?

- A. $h(x) = -\frac{2}{7}x + 23$
- B. $h(x) = -\frac{2}{7}x + 113$
- C. $h(x) = -\frac{7}{2}x + 23$
- D. $h(x) = -\frac{7}{2}x + 113$

Question ID a08e1d3e

Assessment	Test	Domain	Skill	Difficulty
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ID: a08e1d3e

The function h is defined by $h(x) = 4x + 28$. The graph of $y = h(x)$ in the xy -plane has an x -intercept at $(a, 0)$ and a y -intercept at $(0, b)$, where a and b are constants. What is the value of $a + b$?

- A. 21
- B. 28
- C. 32
- D. 35

Question ID 697c5748

Assessment	Test	Domain	Skill	Difficulty
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ID: 697c5748

Number of cars	Maximum number of passengers and crew
3	174
5	284
10	559

The table shows the linear relationship between the number of cars, c , on a commuter train and the maximum number of passengers and crew, p , that the train can carry. Which equation represents the linear relationship between c and p ?

- A. $55c - p = -9$
- B. $55c - p = 9$
- C. $55p - c = -9$
- D. $55p - c = 9$

Question ID 4d170b67

Assessment	Test	Domain	Skill	Difficulty
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ID: 4d170b67

x	$f(x)$
1	−64
2	0
3	64



For the linear function f , the table shows three values of x and their corresponding values of $f(x)$. Function f is defined by $f(x) = ax + b$, where a and b are constants. What is the value of $a - b$?

- A. −64
- B. 62
- C. 128
- D. 192

Question ID 8edd9405

Assessment	Test	Domain	Skill	Difficulty
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ID: 8edd9405

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?

Question ID 144e15c9

Assessment	Test	Domain	Skill	Difficulty
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ID: 144e15c9

The function f is defined by $f(x) = \frac{x+15}{5}$, and $f(a) = 10$, where a is a constant. What is the value of a ?

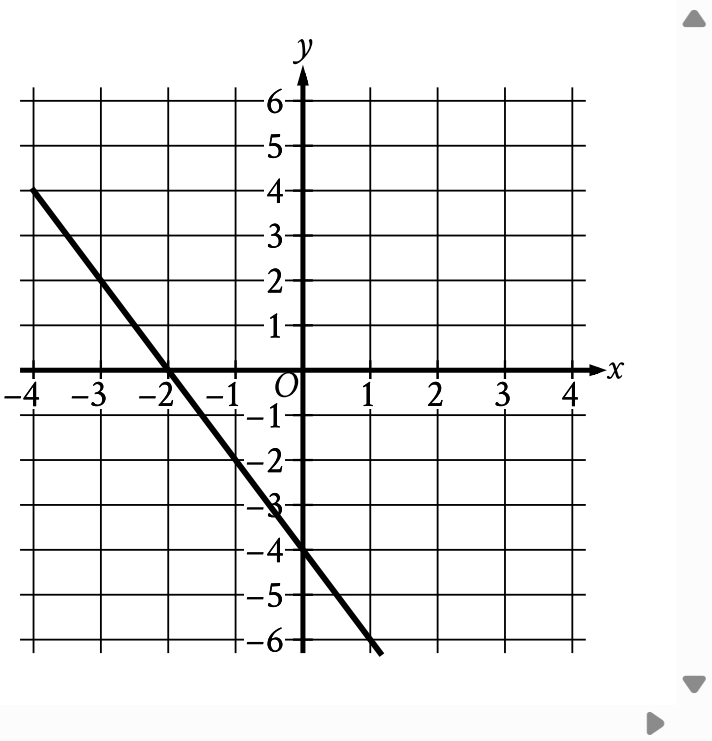
- A. 5
- B. 10
- C. 35
- D. 65

Question ID b9e821cb

Assessment	Test	Domain	Skill	Difficulty
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ID: b9e821cb

The graph of $y = f(x) - 11$ is shown.



Which equation defines the linear function f ?

- A. $f(x) = -13x - 11$
- B. $f(x) = -2x + 7$
- C. $f(x) = -13x + 7$
- D. $f(x) = -2x - 11$

Question ID 4d802587

Assessment	Test	Domain	Skill	Difficulty
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ID: 4d802587

A linear model estimates the population of a city from **1991** to **2015**. The model estimates the population was **57** thousand in **1991**, **224** thousand in **2011**, and x thousand in **2015**. To the nearest whole number, what is the value of x ?

Question ID 8bf18c83

Assessment	Test	Domain	Skill	Difficulty
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ID: 8bf18c83

$$j(x) = mx + 144$$

For the linear function j , m is a constant and $j(12) = 18$. What is the value of $j(10)$?

Question ID e348737d

Assessment	Test	Domain	Skill	Difficulty
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ID: e348737d

For groups of **25** or more people, a museum charges **\$21** per person for the first **25** people and **\$14** for each additional person. Which function ***f*** gives the total charge, in dollars, for a tour group with ***n*** people, where ***n* ≥ 25**?

- A. ***f*(*n*) = 14*n* + 175**
- B. ***f*(*n*) = 14*n* + 525**
- C. ***f*(*n*) = 35*n* − 350**
- D. ***f*(*n*) = 14*n* + 21**

Question ID 3ce8c43b

Assessment	Test	Domain	Skill	Difficulty
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ID: 3ce8c43b

$$F(x) = \frac{9}{5}(x - 273.15) + 32$$

The function F gives the temperature, in degrees Fahrenheit, that corresponds to a temperature of x kelvins. If a temperature increased by 9.10 kelvins, by how much did the temperature increase, in degrees Fahrenheit?

- A. 16.38
- B. 48.38
- C. 475.29
- D. 507.29

Question ID b2d83661

Assessment	Test	Domain	Skill	Difficulty
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ID: b2d83661

A window repair specialist charges \$220 for the first two hours of repair plus an hourly fee for each additional hour. The total cost for 5 hours of repair is \$400. Which function f gives the total cost, in dollars, for x hours of repair, where $x \geq 2$?

- A. $f(x) = 60x + 100$
- B. $f(x) = 60x + 220$
- C. $f(x) = 80x$
- D. $f(x) = 80x + 220$

Question ID 5897227e

Assessment	Test	Domain	Skill	Difficulty
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ID: 5897227e

$f(x) = 2x + 244$

The given function f represents the perimeter, in **centimeters (cm)**, of a rectangle with a length of x **cm** and a fixed width. What is the width, in **cm**, of the rectangle?

- A. **2**
- B. **122**
- C. **244**
- D. **488**

Question ID 10898fb9

Assessment	Test	Domain	Skill	Difficulty
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ID: 10898fb9

The cost of renting a backhoe for up to **10** days is **\$270** for the first day and **\$135** for each additional day. Which of the following equations gives the cost ***y***, in dollars, of renting the backhoe for ***x*** days, where ***x*** is a positive integer and ***x* ≤ 10**?

- A. ***y* = 270*x* − 135**
- B. ***y* = 270*x* + 135**
- C. ***y* = 135*x* + 270**
- D. ***y* = 135*x* + 135**

Question ID ae5abcba

Assessment	Test	Domain	Skill	Difficulty
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ID: ae5abcba

$$F(x) = \frac{9}{5}(x - 273.15) + 32$$

The function F gives the temperature, in degrees Fahrenheit, that corresponds to a temperature of x kelvins. If a temperature increased by 2.10 kelvins, by how much did the temperature increase, in degrees Fahrenheit?

- A. **3.78**
- B. **35.78**
- C. **487.89**
- D. **519.89**

Question ID 73596e60

Assessment	Test	Domain	Skill	Difficulty
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ID: 73596e60

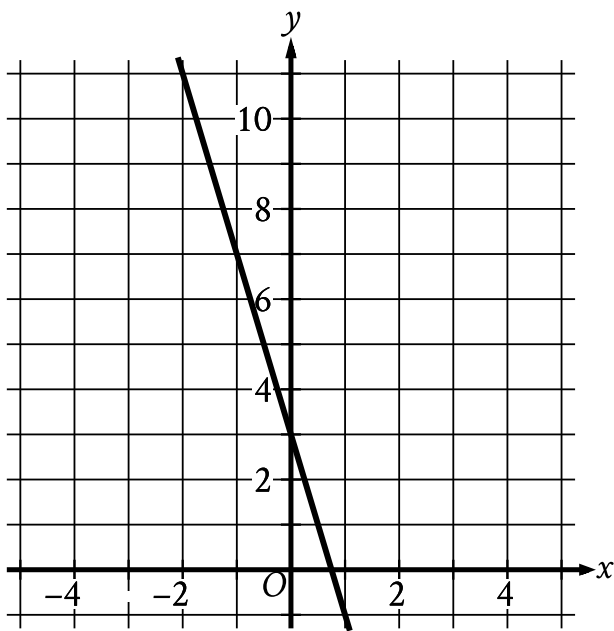
A linear function f gives a company’s profit, in dollars, for selling x items. The company’s profit is \$220 when it sells 8 items, and its profit is \$320 when it sells 10 items. Which equation defines f ?

- A. $f(x) = 150x - 320$
- B. $f(x) = 32x$
- C. $f(x) = 50x - 10x$
- D. $f(x) = 50x - 180$

Question ID 2f1a5f2a

Assessment	Test	Domain	Skill	Difficulty
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ID: 2f1a5f2a



The graph of the linear function $y = f(x) + 19$ is shown. If c and d are positive constants, which equation could define f ?

- A. $f(x) = -d - cx$
- B. $f(x) = d - cx$
- C. $f(x) = -d + cx$
- D. $f(x) = d + cx$

Question ID bd6a65aa

Assessment	Test	Domain	Skill	Difficulty
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ID: bd6a65aa

One gallon of paint will cover **220** square feet of a surface. A room has a total wall area of w square feet. Which equation represents the total amount of paint P , in gallons, needed to paint the walls of the room twice?

- A. $P = \frac{w}{110}$
- B. $P = 440w$
- C. $P = \frac{w}{220}$
- D. $P = 220w$

Question ID 36f22674

Assessment	Test	Domain	Skill	Difficulty
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ID: 36f22674

Kaylani used fabric measuring **5** yards in length to make each suit for a men's choir. The relationship between the number of suits that Kaylani made, x , and the total length of fabric that she purchased y , in yards, is represented by the equation $y - 5x = 6$. What is the best interpretation of **6** in this context?

- A. Kaylani made **6** suits.
- B. Kaylani purchased a total of **6** yards of fabric.
- C. Kaylani used a total of **6** yards of fabric to make the suits.
- D. Kaylani purchased **6** yards more fabric than she used to make the suits.