CHAPTER 2.5

Linear Functions

Multiple-Choice Old Exam Questions

15 questions • 3 topics • options A–E • two questions per page

Topic 1 | Finding Values of Linear Functions

Using two known values to find the slope, an intercept or another function value • Questions 1–6

Q **1**

Let f be a linear function such that $f(-3) = \frac{1}{2}$ and $f(1) = \frac{5}{2}$. Then $f(7) =$

A) $\frac{11}{2}$

B) 5

C) $\frac{13}{2}$

D) $\frac{7}{3}$

E) 6

Q **2**

If $f(x)$ is a linear function with $f(2) = 1$ and $f(-1) = 2$, then the x-intercept of the graph of f is

A) 5

B) -3

C) -8

D) -5

E) 0

Q
3

If $f(x)$ is a linear function with $f(2) = 2$ and $f(3) = 0$, then $f(4)$ is equal to

A) -2

B) 2

C) $-\frac{1}{2}$

D) $\frac{1}{2}$

E) 4

Q
4

If $f(x)$ is a linear function such that $f(-3) = -4$ and $f(2) = 11$, then $f(5) =$

A) 20

B) 14

C) 17

D) 25

E) 9

Q
5

If $y = f(x)$ is a linear function such that $f(-1) = 3$ and $f(3) = 4$, then $f(-5) =$

A) 2

B) -2

C) $\frac{9}{2}$

D) $-\frac{9}{2}$

E) 4

Q
6

Let f be a linear function such that $f(t) = -\frac{1}{2}$ and $f(t+2) = \frac{7}{2}$. Then $f\left(t - \frac{3}{4}\right) =$

A) $-\frac{3}{2}$

B) -2

C) 2

D) $\frac{3}{2}$

E) $-\frac{5}{2}$

Topic 2 | Slope, Parallel Lines and Unknown Parameters

Using the fact that parallel lines have equal slopes • Questions 7–10

Q **7**

Let $y = f(x)$ be a linear function with $f(1) = 5$ and $f(k) = 15$. If the graph of f is parallel to the line $2x + y = 3$, then $k =$

A) -4

B) 2

C) 3

D) -2

E) 4

Q **8**

Let f be a linear function such that $f(2) = c$. If the graph of f is parallel to the line $cx - 2x + y = 3$, then $f(3) =$

A) 2

B) -3

C) -2

D) 3

E) 5

Q
9

If f is a linear function such that $f(2) = 6$ and $f(k) = 15$, and its graph is parallel to the line $3x + 2y + 4 = 0$, then $k =$

A) -4

B) 4

C) -6

D) 6

E) 10

Q
10

If the graph of a linear function has y-intercept $(0,\ 6)$ and slope -2, then the graph passes through the point

A) $(2,\ 2)$

B) $(-2,\ 2)$

C) $(2,\ 10)$

D) $(1,\ 8)$

E) $(6,\ -2)$

Topic 3 | Intersections, Applications and True/False Statements

Intersection of two lines, slope of a ramp, and statements about lines and functions • Questions 11–15

Q **11**

If $(a,\ b)$ is the intersection point of the graphs of $f_1(x) = -3x - 7$ and $f_2(x) = 2x + 13$, then $a + b =$

A) 1

B) -2

C) 4

D) -3

E) 3

Q **12**

If a walkway rises 1.7 ft for every 3.4 ft on the horizontal, then the slope of the walkway is

A) $\frac{1}{2}$

B) 2

C) $-\frac{1}{2}$

D) -2

E) 0

Q
13

Which one of the following statements is FALSE for the function $f(x) = -5$?

A) The range of f is $(-\infty, -5]$

B) The graph of f passes through $(-5, -5)$

C) The domain of f is $(-\infty, \infty)$

D) The graph of f has y-intercept -5

E) The graph of f is a line with slope zero

Q
14

Which one of the following statements is TRUE?

A) The slope of a line that rises from left to right is positive.

B) The slope of the line $x = 5$ is 0.

C) The slope of the line $y = 5$ is 5.

D) The range of the line $y = 5$ is $[0, \infty)$.

E) The domain of the relation $x = 5$ is $(-\infty, \infty)$.

Q
15

Which one of the following statements is TRUE?

A) The slope of the line $25x - 5y - 6 = 0$ is 5.

B) The slope of the line $y = 5$ is 5.

C) The slope of the line $x = 5$ is 5.

D) The range of the graph of $x = 5$ is $\{5\}$.

E) The domain of the graph of $y = 5$ is $\{5\}$.

Answer Key

"Original" shows the question number in the source worksheet.

Q	Original	Ans.	Value
1	1	**A**	$\frac{11}{2}$
2	4	**A**	5
3	7	**A**	-2
4	8	**A**	20
5	10	**A**	2
6	12	**B**	-2
7	2	**A**	-4
8	11	**A**	2
9	13	**A**	-4
10	15	**A**	$(2, 2)$
11	5	**A**	1
12	6	**A**	$\frac{1}{2}$
13	3	**A**	The range of f is $(-\infty, -5]$
14	9	**A**	The slope of a line that rises from left to right is positive.
15	14	**A**	The slope of the line $25x - 5y - 6 = 0$ is 5.