25

$$x + 7y = -10$$
$$3x - 4y = k$$

[handwritten: -7y 7y]

In the system of equations above, k is a constant. If (a, b) is the solution to the system, what is the value of a, in terms of k?

A) $\dfrac{-k-30}{25}$

B) $\dfrac{3k+10}{25}$

C) $\dfrac{6k-8}{25}$

D) $\dfrac{7k-40}{25}$

[handwritten work:
$3x - 4k = k$
$3(-10 - 7y) - 4y = k$
$-30 - 21y - 4y = k$
$-30 - 25y = k$
$\dfrac{-30 - k}{25} = \dfrac{25y}{25}$
$-12 - 1$
D*
]

26

According to the U.S. Department of Labor, the unemployment rate in January of 2012 in the United States was 8.3%. According to the same department, the unemployment rate in January of 2016 was 4.9%. According to the U.S. Department of Labor, how did the unemployment rate change from January 2012 to January 2016?
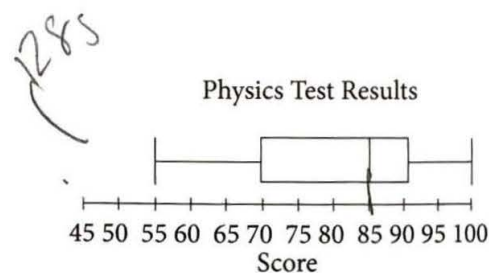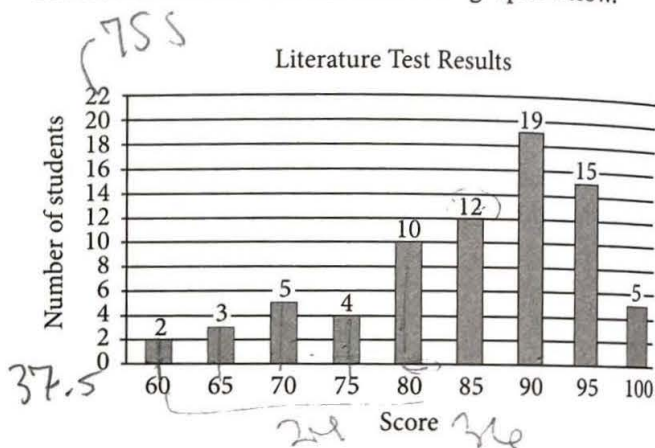
A) It decreased by 79%.

B) It decreased by 41%.

C) It decreased by 34%.

D) It increased by 41%.

[handwritten: $\dfrac{3.4}{8.3}$]

In a particular college, the test scores of the most recent test given for a particular Physics class and a particular Literature class were studied. Both tests were scored from 0 to 100 and had a total of 20 questions, which were equally weighted with no partial credit. The Physics class had 128 students and the Literature class had 75 students. The test results are shown in the two graphs below.

[Literature Test Results bar graph: x-axis Score from 60 to 100, y-axis Number of students 0 to 22. Bars: 60→2, 65→3, 70→5, 75→4, 80→10, 85→12, 90→19, 95→15, 100→5]

[handwritten: 75 S, 37.5, 285]

[Physics Test Results box plot: x-axis Score 45 50 55 60 65 70 75 80 85 90 95 100]

27

The dean of the college is comparing the scores from the two classes and calculates the median for each class. If the dean labels the median score of the Physics class P and the median score of the Literature class L, what is the sum of P and L?

A) 175

B) 170

C) 85

D) 80

[handwritten: $85 + 90$, 175]

CONTINUE

$x + 7y = -10$ ———— ①

$3x - 4y = k$ ———— ②

$4x + 28y = -40$ ———— ①b $= eq① \times 4$

$21x - 28y = 7k$ ———— ②b $= eq② \times 7$

dding eq # ①b & ②b

$25x = 7k - 40$

$$\boxed{x = \frac{7k - 40}{25}}$$

ANSWER: [D]

GIVEN: JAN 2012 UNEMPLOYMENT RATE = 8.3%
JAN 2016   "   " = 4.9%

FIND: % change.

$$= \frac{\text{CHANGE IN VALUE}}{\text{ORIGINAL VALUE}} \times 100$$

$$= \frac{(8.3 - 4.9)}{(8.3)} \times 100$$

$$= \frac{3.4}{8.3} \times 100$$

$$= 0.4096 \times 100$$

$$= 40.96\%$$

% CHANGE = 41 %

DECREASED BY   41 %   ANSWER [B]