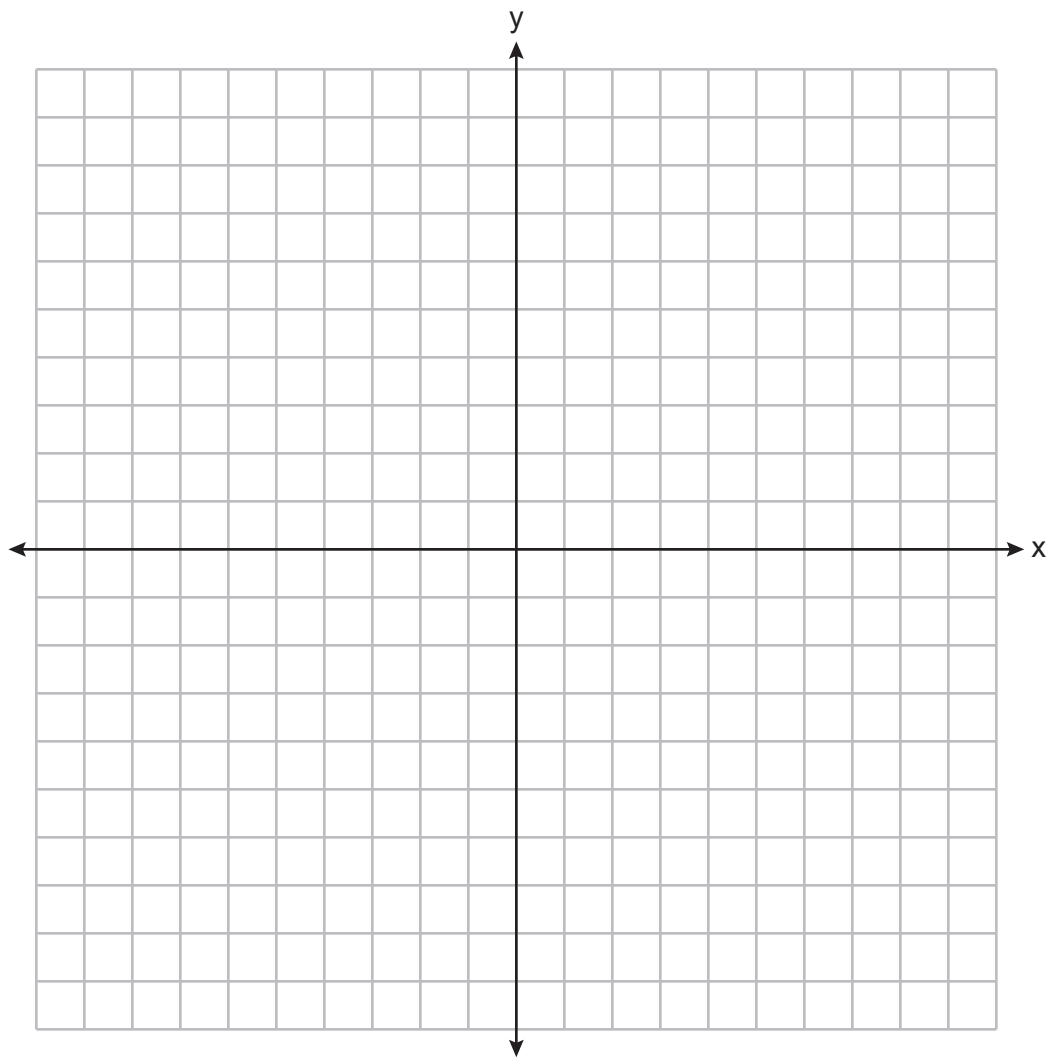


**28** On the set of axes below, graph the equation  $3y + 2x = 15$ .



Explain why  $(-6, 9)$  is a solution to the equation.

**29** Using the quadratic formula, solve  $3x^2 - 2x - 6 = 0$  for all values of  $x$ .  
Round your answers to the *nearest hundredth*.

**30** The piecewise function  $f(x)$  is given below.

$$f(x) = \begin{cases} 2x - 3, & x > 3 \\ -x^2 + 15, & x \leq 3 \end{cases}$$

State the value of  $f(3)$ .

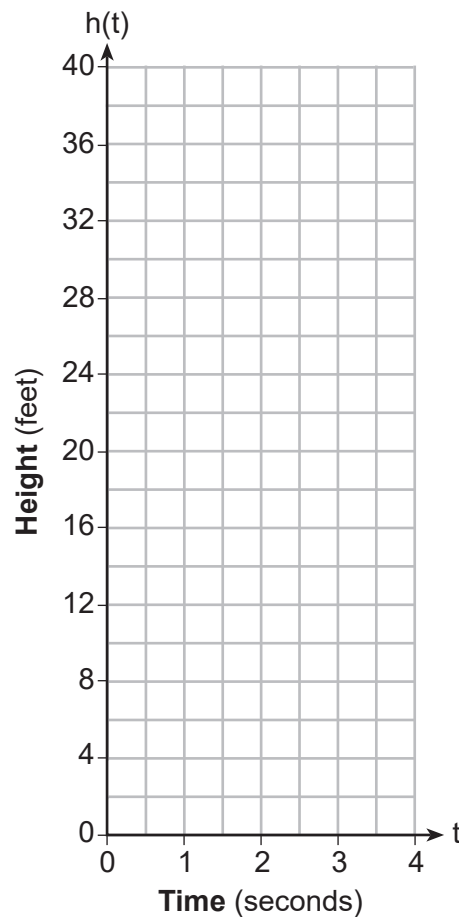
Justify your answer.

### Part III

Answer all 4 questions in this part. Each correct answer will receive 4 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. Utilize the information provided for each question to determine your answer. Note that diagrams are not necessarily drawn to scale. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit. All answers should be written in pen, except for graphs and drawings, which should be done in pencil. [16]

- 33 While playing golf, Laura hit her ball from the ground. The height, in feet, of her golf ball can be modeled by  $h(t) = -16t^2 + 48t$ , where  $t$  is the time in seconds.

Graph  $h(t)$  on the set of axes below.



What is the maximum height, in feet, that the golf ball reaches on this hit?

How many seconds does it take the golf ball to hit the ground?

- 34** The table below shows the number of SAT prep classes five students attended and the scores they received on the test.

<b>Number of Prep Classes Attended</b> (x)	3	1	6	7	6
<b>Math SAT Score</b> (y)	500	410	620	720	500

State the linear regression equation for this data set, rounding all values to the *nearest hundredth*.

State the correlation coefficient, rounded to the *nearest hundredth*.

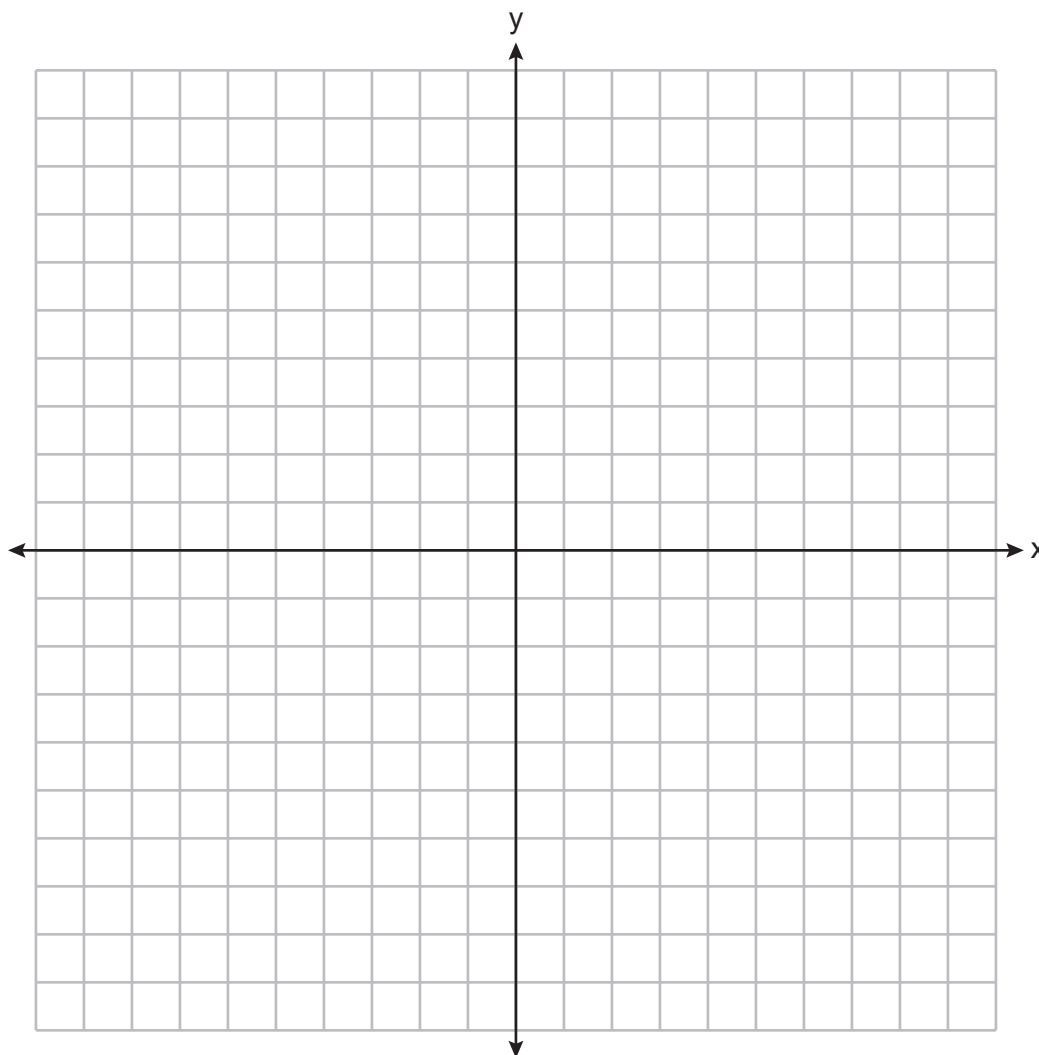
State what this correlation coefficient indicates about the linear fit of the data.

**36** On the set of axes below, graph the following system of inequalities:

$$2x - y > 4$$

$$x + 3y > 6$$

Label the solution set  $S$ .



Is  $(4,2)$  a solution to this system? Justify your answer.

## Part IV

**Answer the question in this part. A correct answer will receive 6 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. Utilize the information provided to determine your answer. Note that diagrams are not necessarily drawn to scale. A correct numerical answer with no work shown will receive only 1 credit. All answers should be written in pen, except for graphs and drawings, which should be done in pencil. [6]**

- 37** Jim had a bag of coins. The number of nickels,  $n$ , and the number of quarters,  $q$ , totaled 28 coins. The combined value of the coins was \$4.

Write a system of equations that models this situation.

Use your system of equations to algebraically determine both the number of quarters,  $q$ , and the number of nickels,  $n$ , that Jim had in the bag.

Jim was given an additional \$3.00 that was made up of equal numbers of nickels and quarters. How many of each coin was he given? Justify your answer.