41. How many solutions does the following system of equations have?

$$\begin{cases} y = \frac{1}{3}x + 5 \\ x - 3y = 15 \end{cases}$$

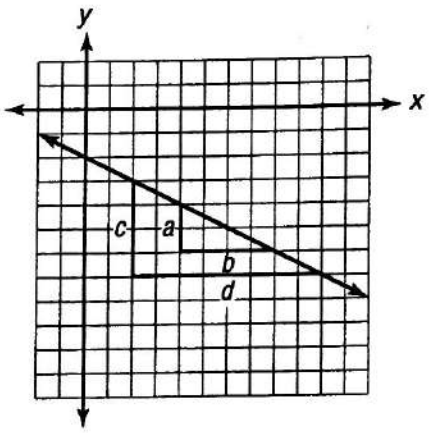
A 0

B exactly 1

C exactly 2

D infinitely many

42. According to the graph, which of the statements below is NOT true?



A $\frac{a}{b}$ represents the slope of the line.

B $\frac{c}{d}$ represents the slope of the line.

C $\frac{a}{b} = \frac{c}{d}$

D $\frac{b}{a}$ and $\frac{d}{c}$ represent the slope of the line.

GO ON

43. How many solutions does the following equation have?

$$2a + 10 - a + 4 = 3(a + 3) + 1$$

A 0

B 1

C 2

D infinitely many

44. Carrie uses her calculator to solve a problem. The display on her calculator reads 6.4E8. What does 6.4E8 mean?

A 6.4^{-8}

B 6.4^{8}

C 6.4×10^{8}

D 6.4×10^{-8}

45. The population of Georgia is about 9,992,000. How do you write this number in scientific notation?

A 9.992×10^{3}

B 9.992×10^{4}

C 999.2×10^{4}

D 9.992×10^{6}

46. How can $8.\overline{34}$ be written in the form $\frac{a}{b}$, where a and b are integers?

A $\frac{8.\overline{34}}{1}$

B $\frac{826}{9}$

C $\frac{826}{99}$

D $\frac{834}{100}$

47. The population of California is about 3.7×10^7. The population of Alaska is about 7.1×10^5. About how many times as large as Alaska's population is the population of California?

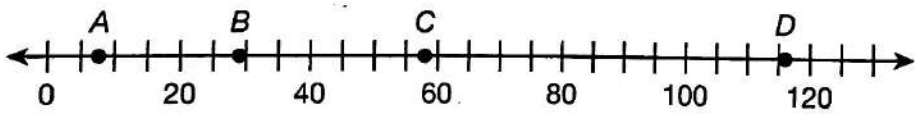
A 0.52

B 5.2

C 52

D 520

48. Which point BEST represents the location of $\sqrt{58}$ on the number line?



A point A

B point B

C point C

D point D

GO ON

49. How can $(5^2)^3$ be written using a single exponent?

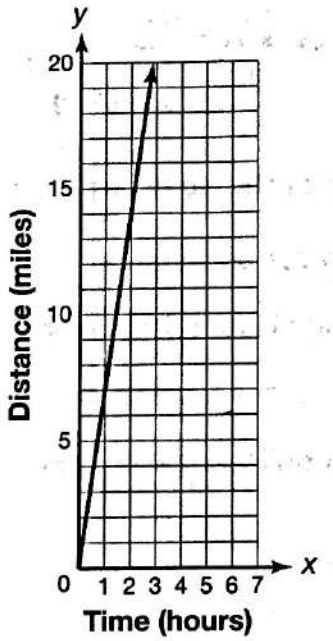
A 5^{-1}

B $5^{\frac{2}{3}}$

C 5^5

D 5^6

50. The graph shows the distance that Miles cycles during a long-distance bike ride.



According to the graph, what is the unit rate?

A $\frac{1}{7}$ mi/hr

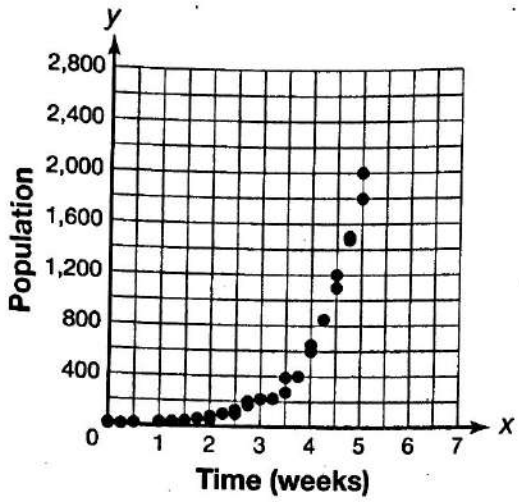
B $\frac{1}{5}$ mi/hr

C 5 mi/hr

D 7 mi/hr

GO ON

51. **The scatter plot shows the population of bacteria in a controlled environment over time.**



What type of relationship does the scatter plot show?

A positive correlation with linear association

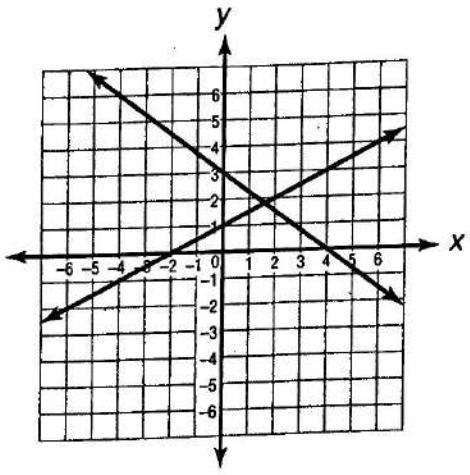
B positive correlation with nonlinear association

C negative correlation with linear association

D negative correlation with nonlinear association

GO ON

52. **Ella graphs the system** $\begin{cases} y = \frac{1}{2}x + 1 \\ y = -\frac{3}{4}x + 3 \end{cases}$ **in the coordinate plane below.**



Which of the statements below is true?

A The graph shows the solution of the system is $\left(1\frac{1}{2}, 1\frac{3}{4}\right)$.

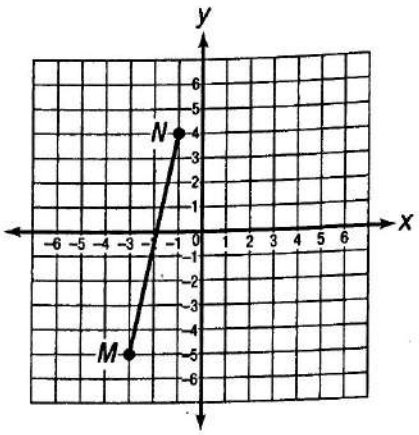
B The system has no solutions because the point of intersection of the two lines does not have integer coordinates.

C The system has infinitely many solutions because the point of intersection of the two lines does not have integer coordinates.

D The system has exactly one solution, but it is impossible to determine the exact solution using the graph of the system.

GO ON

53. $\overline{MN}$ is graphed below.



Which points would represent the image the endpoints of $\overline{M'N'}$ after a 90° counterclockwise rotation about the origin?

A $M'(3, 5)$ and $N'(1, -4)$

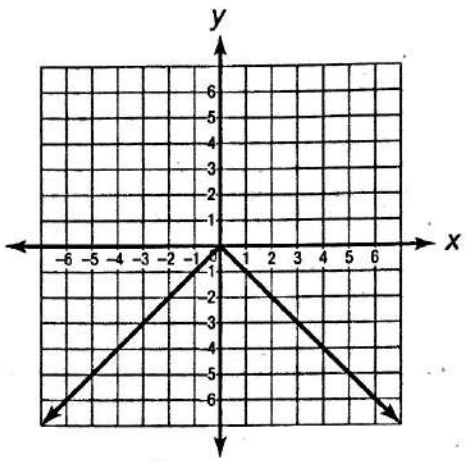
B $M'(3, -5)$ and $N'(1, 4)$

C $M'(-5, -3)$ and $N'(4, -1)$

D $M'(5, -3)$ and $N'(-4, -1)$

GO ON

54. Consider the function graphed below.



Which statement about the function is true?

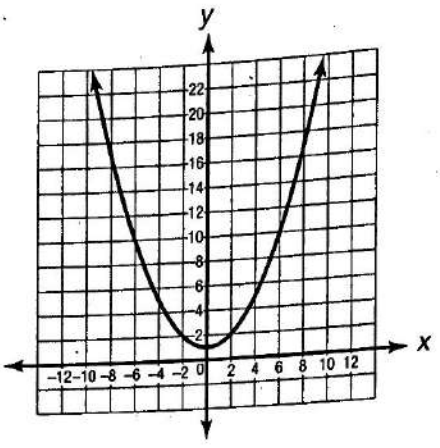
A The function is only increasing, and the rate of increase is constant.

B The function is only decreasing, and the rate of decrease is constant.

C The function decreases at a constant rate and then increases at a constant rate.

D The function is nonlinear.

55. Demarcus graphed the function shown below.



Which statement about the function is true?

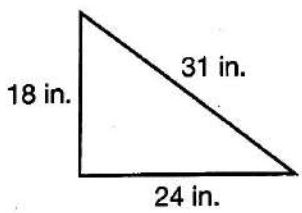
A The function is only increasing.

B The function is only decreasing.

C The function decreases and then increases.

D The function is linear.

56. The stepping stone below is in the shape of a triangle. Is the stepping stone a right triangle?



A Yes, because $18^2 + 24^2 = 31^2$.

B No, because $18^2 + 24^2 \neq 31^2$.

C Yes, because it appears to have a right angle.

D No, because $18 + 24 \neq 31$.

GO ON

57. **The equation $y = 50x + 150$ represents the balance of Natalie's savings account y after x months.**

Which of the following statements regarding Natalie's account is NOT true?

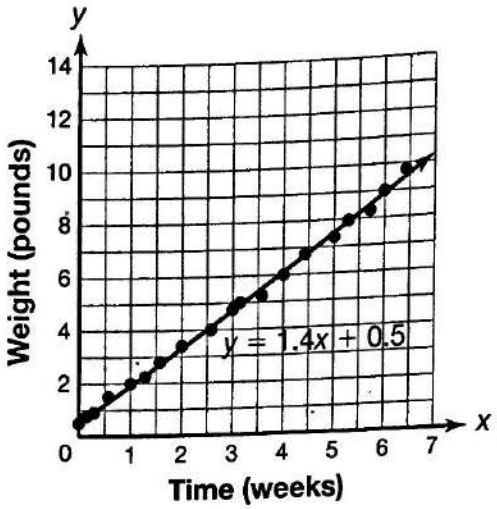
A The rate of change of the function is the slope of the line, 50.

B The initial value of the function is the y-intercept of the line, 150.

C Initially, Natalie deposits $50 into her account.

D Each month after the initial month, Natalie deposits $50 into the account.

58. **The line of best fit in the scatter plot below models the weight of an eaglet over time.**



Which of the following statements is NOT true?

A The slope of the line of best fit is 1.4.

B The *y*-intercept of the line of best fit is 0.5.

C The slope of the line of best fit means that the eaglet gains about 1 pound every 1.4 weeks.

D The *y*-intercept of the line of best fit means that the initial weight of the eaglet was about 0.5 pound.

59. **A size 5 soccer ball has a diameter of about 8.5 inches. To the nearest cubic inch, what is the volume of a size 5 soccer ball?**

A about 76 $in.^3$

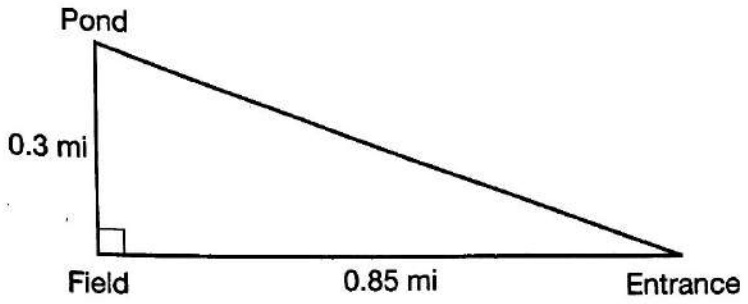
B about 303 $in.^3$

C about 322 $in.^3$

D about 2,572 $in.^3$

GO ON

60. A park has three walking paths that intersect to form a right triangle, as shown below.



Elena walks from the entrance to the field, and from the field to the pond. Michael walks directly from the entrance to the pond. About how much farther does Elena walk than Michael?

A about 0.25 mile

B about 0.81 mile

C about 0.9 mile

D about 1.15 mile

61. Sumir solved the equation $6(x + 1) - 2 = 8x - 2 - 2x - 1$. His work is shown below.

$$\begin{aligned} 6(x + 1) - 2 &= 8x - 2 - 2x - 1 \\ 6x + 6 - 2 &= (8x - 2x) + (-2 - 1) \\ 6x + 4 &= 6x + (-3) \\ 6x + 4 &= 6x - 3 \end{aligned}$$

What can you conclude from Sumir's work?

A The solution of the equation is $6x - 3$.

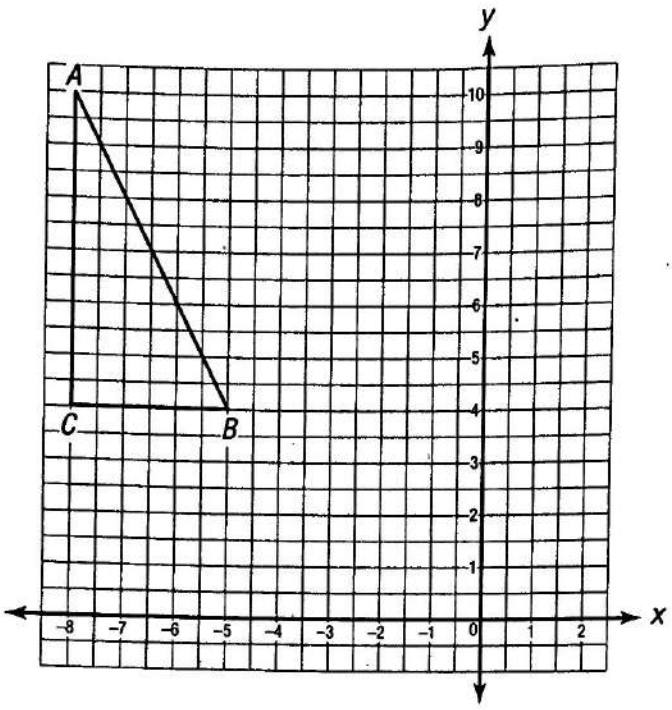
B The equation has no solution.

C The solution of the equation is 0.

D The equation has infinitely many solutions.

GO ON

62. **Suppose you translate $\triangle ABC$ 10 units right and 4 units up. What will be the coordinates of A'?**



A (2, 14)

B (2, 6)

C (−4, 20)

D (−18, 6)

63. **Karen draws a triangle on a coordinate plane. Then, Jerry rotates then reflects it. Ron then translates then dilates the image Jerry made. What conclusion can be drawn about the final image Ron creates?**

A The image will be similar to the original triangle because a sequence of rigid transformations was used to obtain it.

B The image will be similar to the original triangle because a dilation was one of the transformations applied to Karen's triangle.

C The image will not be similar to the original triangle because a dilation was combined with other transformations to obtain it.

D The image will not be similar to the original triangle because there was an even number of transformations applied to Karen's triangle.

STOP