TEST NAME: **EOG Review**
TEST ID: **1134190**
GRADE: **08 - Eighth Grade**
SUBJECT: **Mathematics**
TEST CATEGORY: **School Assessment**

1. Which exponential form is equivalent to $8 \times 8 \times 8 \times m \times m \times m \times m$?

   A. $3^8 \times m^4$
   B. $3^8 \times 4m$
   C. $8^3 \times m^4$
   D. $8^3 \times 4m$

2. Given the area of a square, which mathematical operation is required to find the length of the side of the square?

   A. addition
   B. subtraction
   C. cube root
   D. square root

3. The mass of Jupiter is approximately 1.9×10^{27} kilograms, while the mass of the Earth is approximately 5.972×10^{24} kilograms. The mass of Jupiter is approximately how many times the mass of the Earth?

   A. 0.318
   B. 3.18
   C. 318
   D. 3180

4. Which value is equivalent to $2.4 \times 10^4 - 1.7 \times 10^2$?

   A. 238,300
   B. 23,830
   C. 2230
   D. 70

5. Mr. Smith withdrew $6,000 from his savings account to purchase a car. He plans on depositing $250 per month into his account in order to make up for the amount he took out. Which graph best represents the length of time it will take to replace the money in his account?
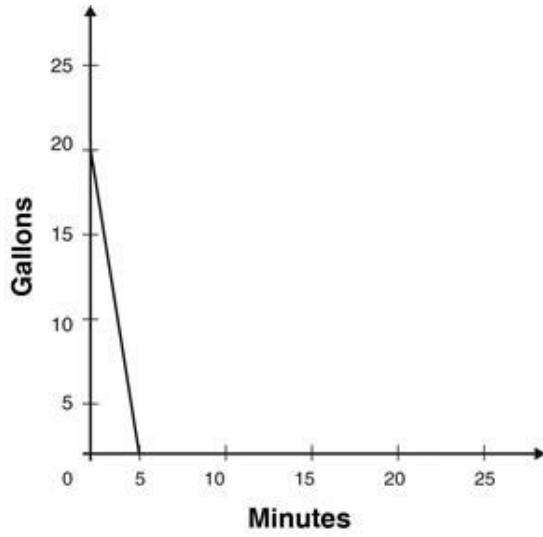
A.

B.

C.

D.
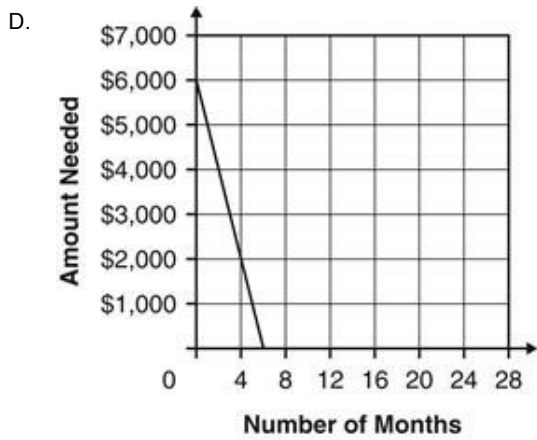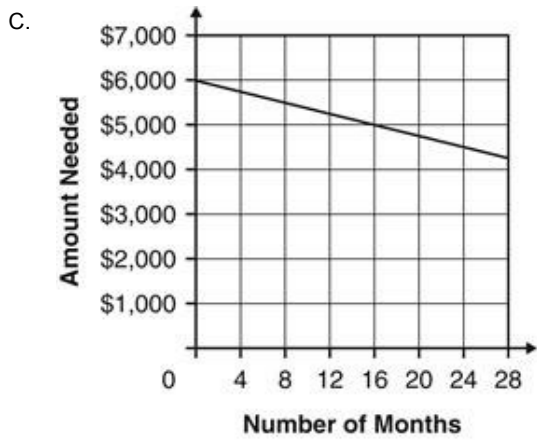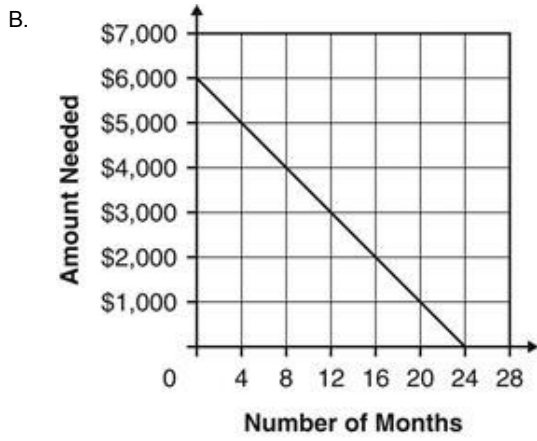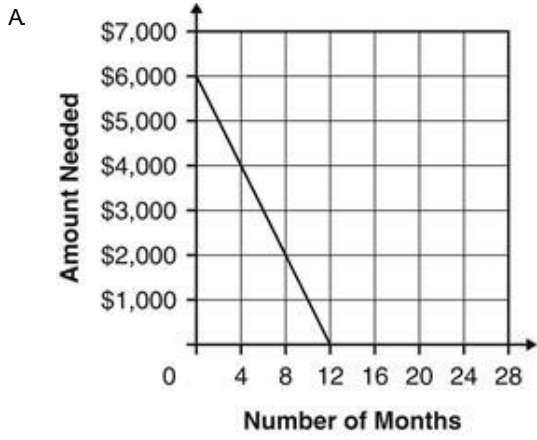
6. **A 20-gallon tank loses 4 gallons of water every 5 minutes. Which graph below represents this situation?**
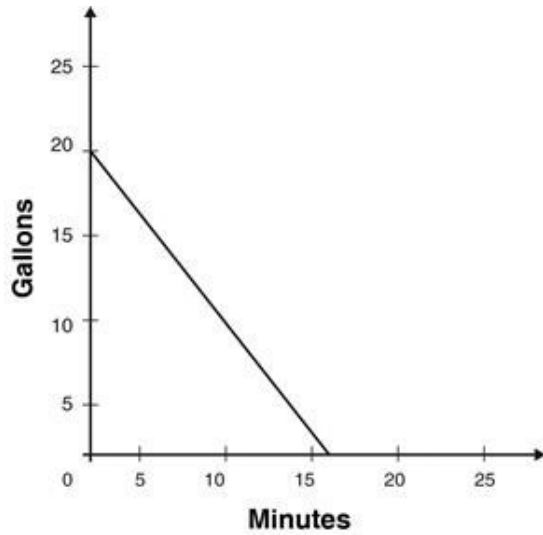
A.

B.

C.

D.
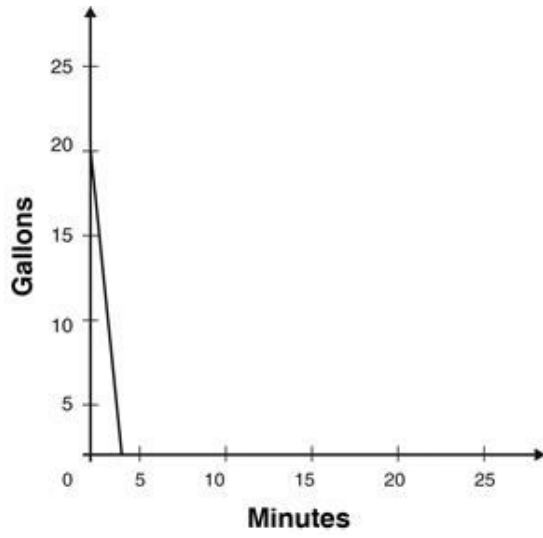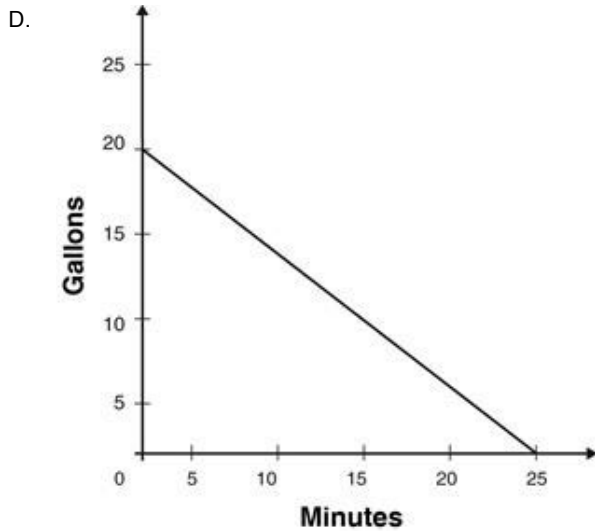
7. Which equation has an infinite number of solutions?

A. $7(1-4x)+3x = 7$

B. $5(2-4x)+4x = 10$

C. $8(2-2x)+16x = 9$

D. $6(3-2x)+12x = 18$

8. A student solved an equation for the unknown value of *n* as 0 =0. Which set represents all of the possible values of *n*?

A. only zero can be the solution

B. only positive numbers can be the solution

C. only negative numbers can be the solution

D. any number can be the solution

9. **Which equation is equivalent to** $7 + 3(x + 4) = 10$?

A. $3x + 11 = 10$
B. $3x + 19 = 10$
C. $10x + 4 = 10$
D. $10x + 40 = 10$

10. What is the value of x in the equation $6(x + 5) = 3(x - 14)$?

    A. ‾1

    B. ‾4

    C. ‾6

    D. ‾24

11. **Two linear equations are given below.**

$$x - 4y = -20$$
$$x - 4y = -8$$

Exactly how many solutions does this system of equations have?

    A. no solution
    B. one solution
    C. two solutions
    D. infinite solutions

12. **Solve for *x*.**

$$x + 4y = 6, 3y = 12$$

    A. $x = 4$
    B. $x = -4$
   C. $x = 10$
    D. $x = -10$

13. Sam read 3 times as many pages in his history textbook on Monday night as he read on Tuesday night. Altogether, he read 56 pages. How many pages did Sam read on Monday night?

    A. 14

    B. 19

    C. 28

    D. 42

14. **Which of the following equations represents a function?**

    A. $x = 3$
    B. $y^2 = x + 3$
    C. $y^2 = x^4 + 3$
    D. $y = 4x^2 - 9$

15. Mary earns $7.25 an hour. She can determine her salary, *s*, for the number of hours she works, *h*, by using the equation $s = 7.25h$. Which statement explains why *s* is a function of *h*?

A.   For every value of *h* there is only one value of *s*.

B.   For some values of *h* there is more than one value of *s*.

C.   For some values of *s* there is more than one value of *h*.

D.   For every value of *s* there are two values of *h*.

16. Function *R* is represented by the equation $y = x + 3$. Function *S* is shown on the graph below.
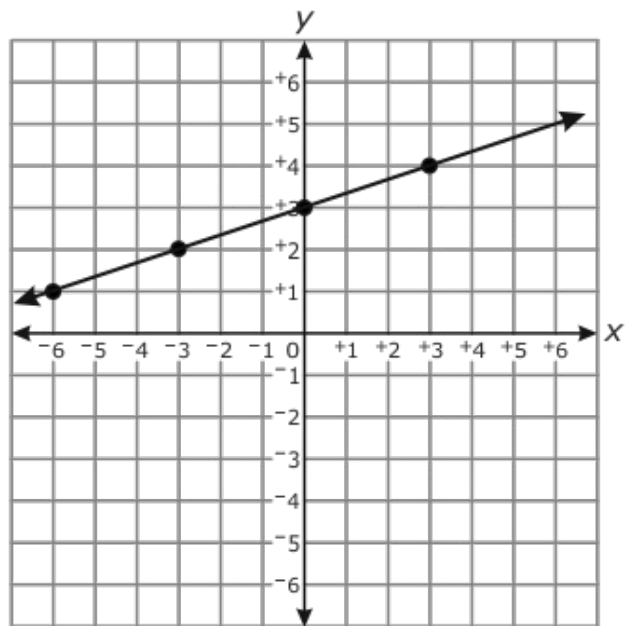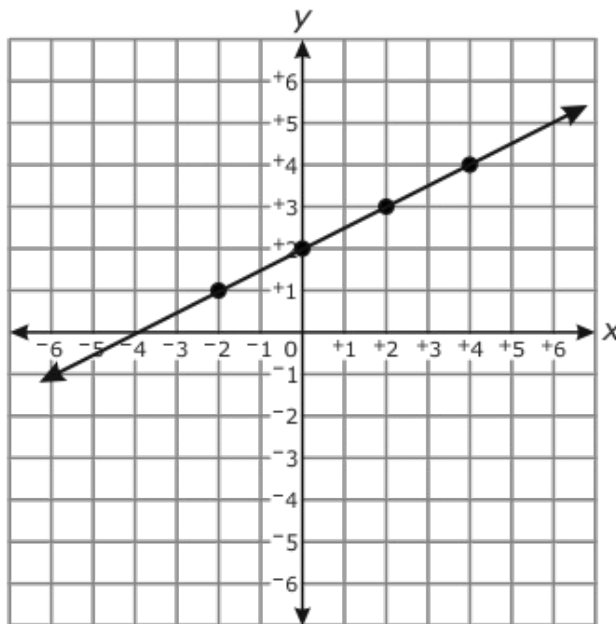

Which statement is true?

A.   Both functions have the same slope.

B.   Both functions have the same *y*-intercept.

C.   The slope of function *S* is greater than the slope of function *R*.

17. Function *V* contains the points in the table below.

x	y
3	6
5	10
7	14

Function *W* is shown on the graph below.

What is the difference in the *y*-intercepts of the two functions?

A. 0

B. 1

C. 2

18. Which equation is a non-linear function?

A. $y = {}^-4x + 2$

B. $y = 5$

C. $y = x^2$

D. $y = 5x$

19. The cost to join a gym includes a one-time membership fee, plus a monthly fee.

   - John joined the gym and paid $325 for 6 months.
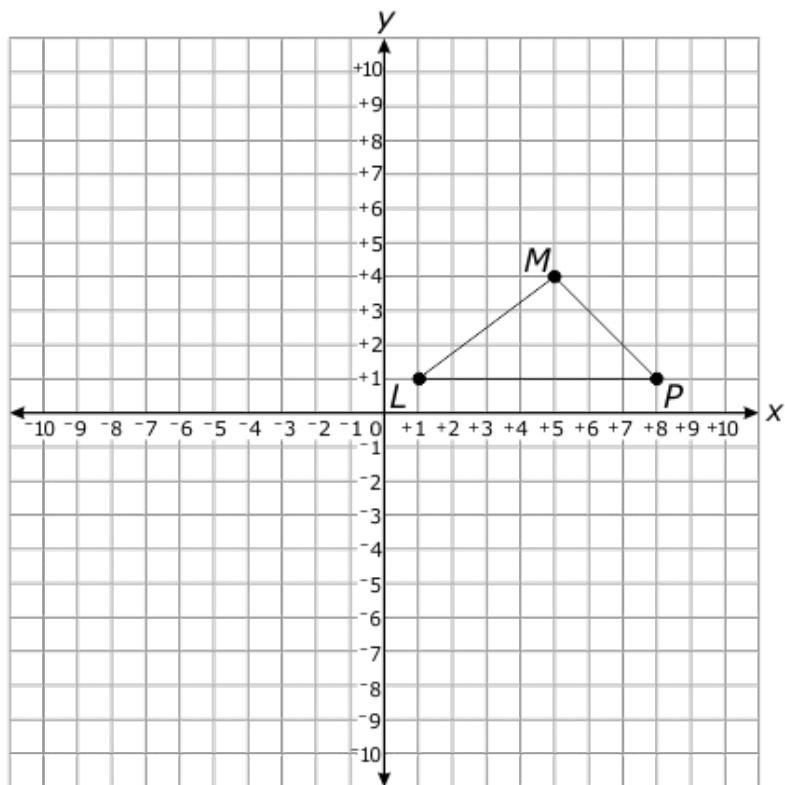   - Abigail joined the gym and paid $475 for 9 months.

   What is the monthly fee after a person joins the gym?

   A. $25

   B. $50

   C. $55

   D. $150

20. The points ($^-$3, $^-$5), (0, 4), and (3, 13) lie on the same line. Which equation describes the function for that line?

   A. $y = 2x + 1$

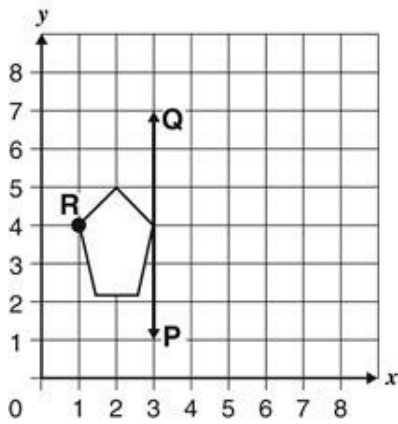   B. $y = 3x + 4$

   C. $y = x + 4$

   D. $y = x + {^-}2$

21. Triangle *MLP* will be rotated 180° clockwise about the origin.

What will be the coordinates of *M'*?
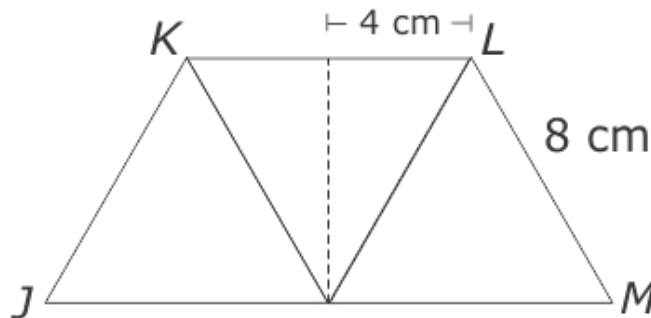
A. (⁻5, ⁻4)

B. (⁻5, 4)

C. (⁻4, ⁻5)

D. (4, ⁻5)

22. **Harold drew this sketch of a pentagon on the coordinate grid below.**

Harold then reflected the figure, including Point *R,* across Line $\overrightarrow{PQ}$. Which set of coordinates would be closest to Point *R* after the pentagon was reflected?

A. (4, 5)

B. (4, 4)

C. (5, 4)

D. (5, 5)

23. Quadrilateral *JKLM* contains 3 equilateral triangles. All 3 triangles have a side length of 8 cm.


What is the **approximate** area of the quadrilateral?

A. 83 cm^2

B. 96 cm^2

C. 108 cm^2

D. 192 cm^2

24. What is the distance between the points (1, ⁻2) and (⁻2, 2)?

    A. 5 units

    B. 6 units

    C. 7 units

25. Triangle *JKL* has vertices at *J*(⁻4, 3), *K*(2, ⁻5), and *L*(⁻4, ⁻5). What is the perimeter of triangle *JKL*?

    A. 2 units

    B. 10 units

    C. 14 units

    D. 24 units

26. **Javier has a model of a cone with a radius of 3 inches and a height of 10 inches. Javier increased his model's volume by doubling its radius and height. What is the volume of the larger cone in cubic inches?**

    A. 30π
    B. 60π
    C. 120π
    D. 240π

27. **What is the volume, in cubic centimeters, of the cylinder below?**

8 cm

10 cm

    A. 40π
    B. 80π
    C. 160π
    D. 640π
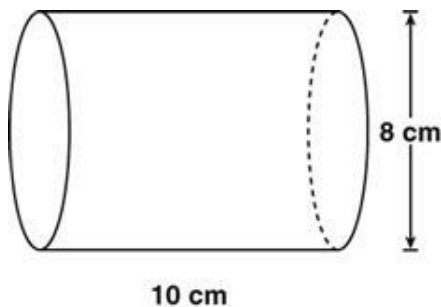
28. **Which number is irrational?**

    A. $-\sqrt{81}$

    B. $\dfrac{\sqrt{4}}{10}$
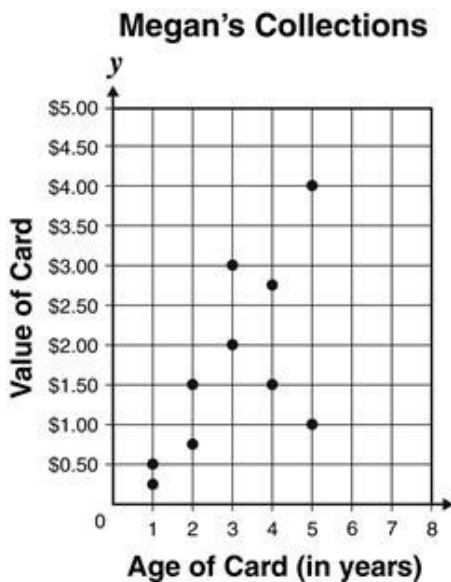
    C. $\sqrt{36}$

    D. $\sqrt{8}$

29. The value of $\sqrt{15}$ is between which two consecutive integers?

    A. 3 and 4

    B. 7 and 8

    C. 14 and 16

30. **The value of $\sqrt{345}$ is between which two numbers?**

    A. 13 and 15

    B. 15 and 17

    C. 17 and 19

    D. 19 and 21

31. **Megan has a baseball card collection containing 10 cards. She graphed the value of these 10 cards on a scatterplot as shown.**

Megan's Collections

Which conclusion is best supported by the data?

    A. A baseball card always increases in value over time.

    B. A baseball card generally increases in value over time.

    C. If Megan bought a two-year-old baseball card, its value would be about $1.25.

   D. If Megan bought an eight-year-old baseball card, its value would be about $5.00.

32. **A scientist recorded the number of gray wolves in an area over a 10-year period. The data is shown in the graph below.**

Gray Wolf Sightings
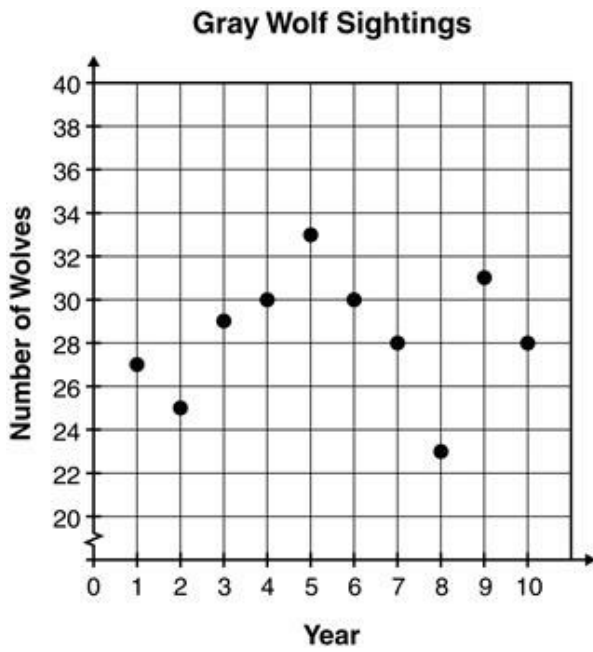
When was the wolf population the largest?

A. Year 4

B. Year 5

C. Year 8

D. Year 9

33. For 4 nights, Nadia compares the amount of tips she receives working in a restaurant to the number of customers she serves. She plots her data on the graph below.

Tips Earned Based on Number of Customers
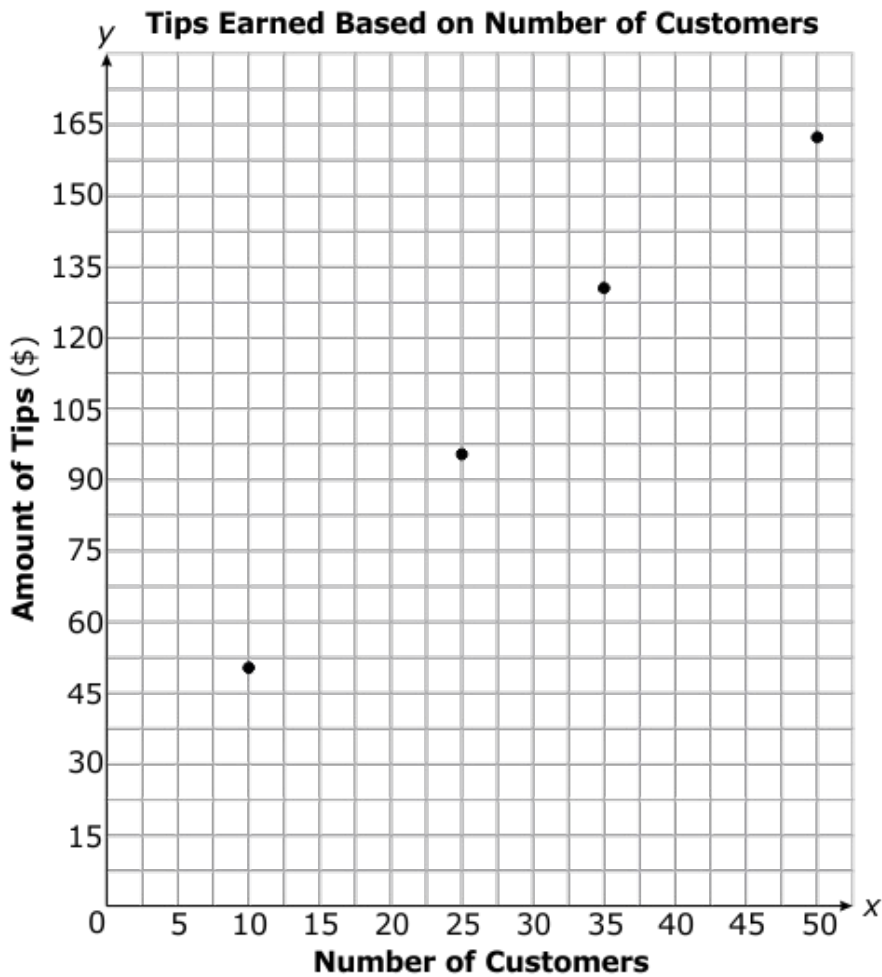
Based on the data in the scatterplot, which equation could Nadia use to estimate the amount of tips, y, based on the number of customers, x?

A. $y = 3x$

B. $y = 5x$

C. $y = 3x + 25$

D. $y = 5x + 25$

34. The line of best fit for a scatter plot showing the age, *x*, and value, *y*, of a car is *y* = ⁻1,580*x* + 17,020. What does the *y*-intercept represent?

   A. The age of the car is 2 years.

   B. The ending value of the car is $1,580.

   C. The beginning value of the car is $17,020.

   D. The amount of money owed to the bank for the car is $15,440.