Algebra 1 Quick-Quiz-12182024

Question 1.

This equation represents the ideal gas law, where T is the temperature.
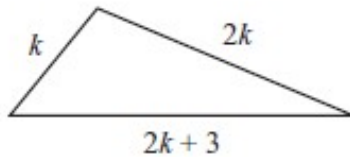
$$PV = nRT$$

Which equation has been correctly rearranged to solve for T?

Ⓐ $T = nR - PV$

Ⓑ $T = PV - nR$

Ⓒ $T = \frac{nR}{PV}$

Ⓓ $T = \frac{PV}{nR}$

Question 2

The dimensions of a triangle, in units, are represented by expressions, as shown in the diagram below.

Which of the following expressions represents the perimeter, in units, of the triangle?

A. $4k^3 + 3$
B. $5k^3 + 3$
C. $4k + 3$
D. $5k + 3$

Question 3.

Which of the following equations are linear functions?

Select the **three** equations that are linear functions.

Ⓐ $y = \frac{2}{3}x + 4$
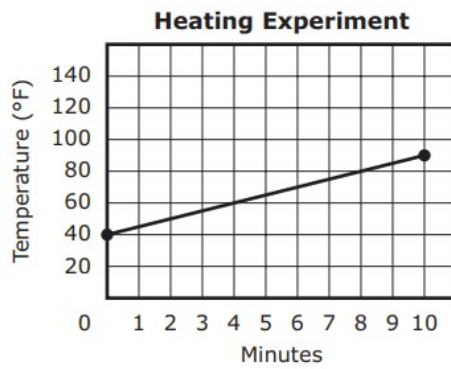
Ⓑ $y = (x - 6)^2$

Ⓒ $y = -3x$

Ⓓ $y = x$

Ⓔ $y = x^2$

Ⓕ $y = x^3$

Question 4.

This graph shows the temperature, in degrees Fahrenheit, of a liquid for the first ten minutes of a heating experiment.

Heating Experiment

Based on the graph, which of the following functions could be used to determine T, the temperature of the liquid after m minutes?

Ⓐ $T = 5m + 40$
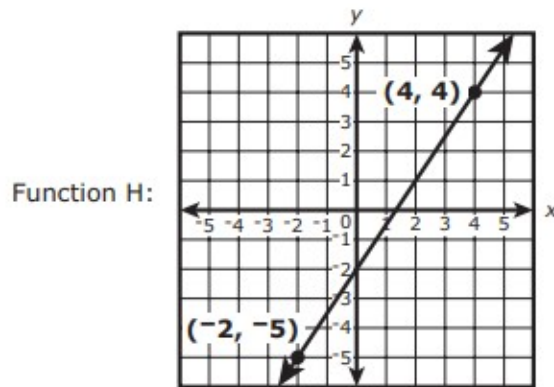
Ⓑ $T = -5m + 40$

Ⓒ $T = 5m + (-40)$

Ⓓ $T = -5m + (-40)$

Question 5.

Functions H and K each show a relationship between x and y.

Function H:

Function K:

x	y
−2	4
0	6
2	8
4	10
6	12

Which of the following statements about functions H and K are true?

Select the **three** correct answers.

Ⓐ The slope of the line that represents function H is $\frac{2}{3}$.

Ⓑ The slope of the line that represents function H is $\frac{3}{2}$.

Ⓒ The y-intercept of the line that represents function H is 1.

Ⓓ The y-intercept of the line that represents function H is −2.

Ⓔ The rate of change of function K is less than the rate of change of function H.

Ⓕ The rate of change of function K is greater than the rate of change of function H.

Question 6.

The formula for electrical power, P, is $P = I^2R$, where I is current and R is resistance. The formula for I in terms of P and R is

(1) $I = \left(\dfrac{P}{R}\right)^2$

(3) $I = (P - R)^2$

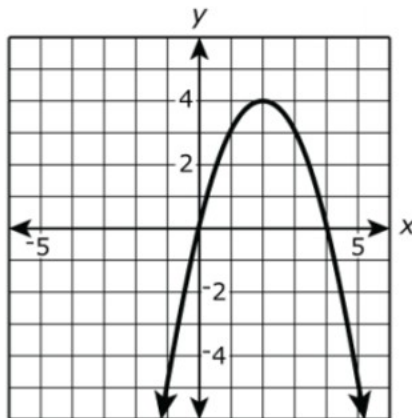(2) $I = \sqrt{\dfrac{P}{R}}$

(4) $I = \sqrt{P - R}$

Question 7.

Which of the following is **not** a solution of the equation below?

$$3x(x - 1)(x - 2) = 0$$

A. $x = 0$

B. $x = 1$

C. $x = 2$

D. $x = 3$

Question 8. *This question has 4 parts. For each part state whether the function is **I**, for increasing or **D**, for decreasing.*

The function $f(x) = 4x - x^2$ is graphed as shown.

With each given interval state whether the function is increasing or decreasing:

(a) $x < 0$

(b) $0 < x < 2$

(c) $2 < x < 4$

(d) $x > 4$

Question 9.

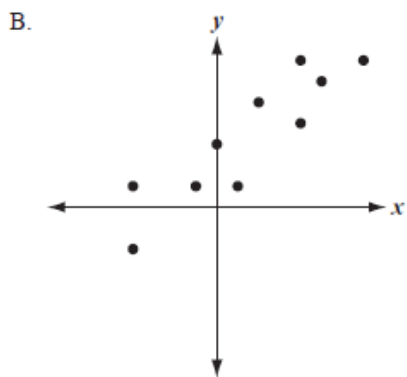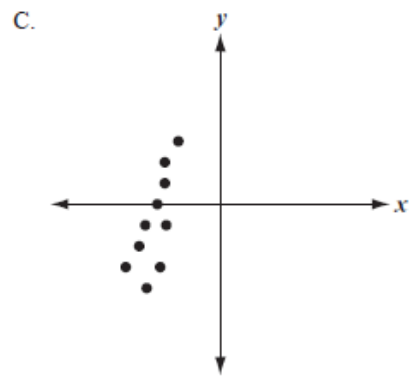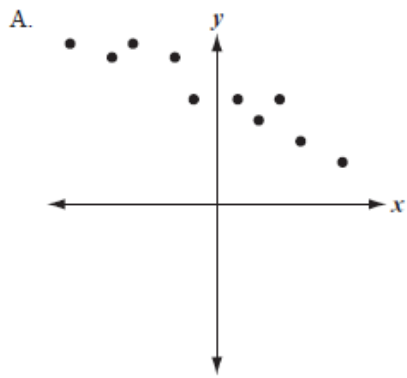A linear equation is shown below.

$$y = \tfrac{2}{5}x + 2$$

What is the value of x when $y = 2\tfrac{2}{3}$?

A. $3\tfrac{3}{4}$

B. $3\tfrac{1}{15}$

C. $1\tfrac{2}{3}$

D. $1\tfrac{1}{9}$

Question 10.

Tomás made a scatterplot of data he collected. He determined that the y-intercept of the line of best fit for the scatterplot is negative.
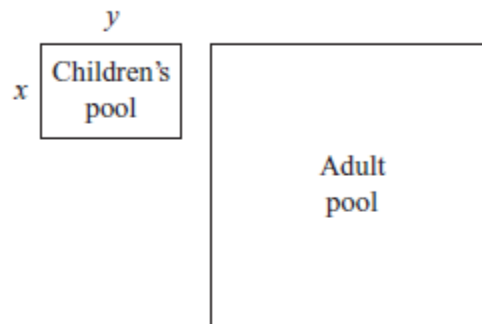
Which of the following could be the scatterplot Tomás made?

A.

C.

B.

D.

Bonus Question
Question 11

This question has 4 parts.

The children's pool and the adult pool in a recreation center are both in the shape of right rectangular prisms. In the diagram below, the two rectangles represent the children's pool and the adult pool.

Define x and y as follows:

- x = the width, in yards, of the children's pool
- y = the length, in yards, of the children's pool

a. Write an expression using x and y to represent the area of the children's pool.

The adult pool has the following measurements:

- The width of the adult pool is 3 times the width of the children's pool.
- The length of the adult pool is 2 times the length of the children's pool.

b. Write an expression using x and y to represent the area of the adult pool.

c. What is the ratio of the area of the children's pool to the area of the adult pool? Show or explain how you got your answer.