

RW question 4

Participants' Evaluation of the Likelihood That Robots Can Work Effectively in Different Occupations

Occupation	Somewhat or very unlikely (%)	Neutral (%)	Somewhat or very likely (%)
television news anchor	24	9	67
teacher	37	16	47
firefighter	62	9	30
surgeon	74	9	16
tour guide	10	8	82

Rows in table may not add up to 100 due to rounding.

Georgia Tech roboticists De'Aira Bryant and Ayanna Howard, along with ethicist Jason Borenstein, were interested in people's perceptions of robots' competence. They recruited participants and asked them how likely they think it is that a robot could do the work required in various occupations. Participants' evaluations varied widely depending on which occupation was being considered; for example, _____

Which choice most effectively uses data from the table to complete the example?

- A) 82% of participants believe that it is somewhat or very likely that a robot could work effectively as a tour guide, but only 16% believe that it is somewhat or very likely that a robot could work as a surgeon.
- B) 47% of participants believe that it is somewhat or very likely that a robot could work effectively as a teacher, but 37% of respondents believe that it is somewhat or very unlikely that a robot could do so.
- C) 9% of participants were neutral about whether a robot could work effectively as a television news anchor, which is the same percent of participants who were neutral when asked about a robot working as a surgeon.
- D) 62% of participants believe that it is somewhat or very unlikely that a robot could work effectively as a firefighter.

Key	A
Domain	Information and Ideas
Skill	Command of Evidence (Quantitative)

Key Explanation: **Choice A** is the best answer.

This choice supports the claim by contrasting two occupations that survey participants gave widely divergent probabilities of robots working effectively in: tour guide (82 percent) and surgeon (16 percent).

Distractor Explanations: **Choice B** is incorrect because it focuses on only one occupation—that of teacher—and therefore does not illustrate how survey participants' views of the likelihood of robots working effectively vary widely by occupation. **Choice C** is incorrect because although it does compare survey participants' views of robots working effectively in two occupations, the percentages cited for television news anchor and surgeon are the same, not widely varied. **Choice D** is incorrect because it focuses on only one occupation—that of firefighter—and therefore does not illustrate how survey participants' views of the likelihood of robots working effectively vary widely by occupation.

Math question 1

If $f(x) = x + 7$ and $g(x) = 7x$, what is the value of $4f(2) - g(2)$?

- A) -5
- B) 1
- C) 22
- D) 28

Key C

Domain Algebra

Skill Linear functions

Evaluate a linear function given an input value

Key Explanation: Choice C is correct. The value of $f(2)$ can be found by substituting 2 for x in the given equation $f(x) = x + 7$, which yields $f(2) = 2 + 7$, or $f(2) = 9$. The value of $g(2)$ can be found by substituting 2 for x in the given equation $g(x) = 7x$, which yields $g(2) = 7(2)$, or $g(2) = 14$. The value of the expression $4f(2) - g(2)$ can be found by substituting the corresponding values into the expression, which gives $4(9) - 14$. This expression is equivalent to $36 - 14$, or 22.

Distractor Explanations: Choice A is incorrect. This is the value of $f(2) - g(2)$, not $4f(2) - g(2)$. Choice B is incorrect and may result from calculating $4f(2)$ as $4(2) + 7$, rather than $4(2 + 7)$. Choice D is incorrect and may result from conceptual or calculation errors.

Math question 2

The y -intercept of the graph of $y = -6x - 32$ in the xy -plane is $(0, y)$. What is the value of y ?

Key -32

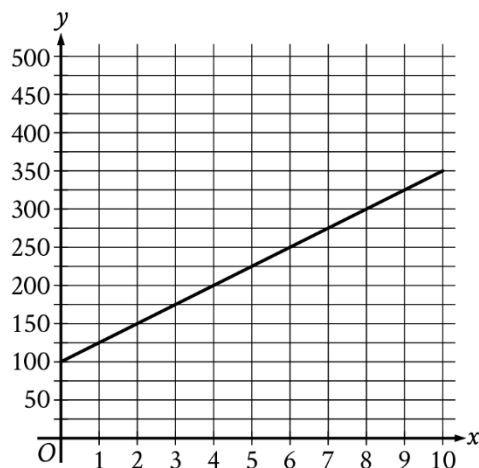
Domain Algebra

Skill Linear equations in two variables

Make connections between an algebraic representation and a graph

Key Explanation: The correct answer is -32. It's given that the y -intercept of the graph of $y = -6x - 32$ is $(0, y)$. Substituting 0 for x in this equation yields $y = -6(0) - 32$ or $y = -32$. Therefore, the value of y that corresponds to the y -intercept of the graph of $y = -6x - 32$ in the xy -plane is -32.

Math question 3



The graph of the function f , where $y = f(x)$, models the total cost y , in dollars, for a certain video game system and x games. What is the best interpretation of the slope of the graph in this context?

- A) Each game costs \$25.
- B) The video game system costs \$100.
- C) The video game system costs \$25.
- D) Each game costs \$100.

Key	A
Domain	Algebra
Skill	<i>Linear functions</i> Interpret the graph of a linear function in terms of a context

Key Explanation: Choice A is correct. The given graph is a line, and the slope of a line is defined as the change in the value of y for each increase in the value of x by 1. It's given that y represents the total cost, in dollars, and that x represents the number of games. Therefore, the change in the value of y for each increase in the value of x by 1 represents the change in total cost, in dollars, for each increase in the number of games by 1. In other words, the slope represents the cost, in dollars, per game. The graph shows that when the value of x increases from 0 to 1, the value of y increases from 100 to 125. It follows that the slope is 25, or the cost per game is \$25. Thus, the best interpretation of the slope of the graph is that each game costs \$25.

Distractor Explanations: Choice B is incorrect. This is an interpretation of the y -intercept of the graph rather than the slope of the graph. **Choice C** is incorrect. The slope of the graph is the cost per game, not the cost of the video game system. **Choice D** is incorrect. Each game costs \$25, not \$100.

Math question 4

$$y < -4x + 4$$

Which point (x, y) is a solution to the given inequality in the xy -plane?

- A) $(2, -1)$
- B) $(2, 1)$
- C) $(0, 5)$
- D) $(-4, 0)$

Key	D
Domain	Algebra
Skill	<i>Linear inequalities in one or two variables</i> For a linear inequality, interpret a point in the xy -plane

Key Explanation: Choice D is correct. For a point (x, y) to be a solution to the given inequality in the xy -plane, the value of the point's y -coordinate must be less than the value of $-4x + 4$, where x is the value of the x -coordinate of the point. This is true of the point $(-4, 0)$ because $0 < -4(-4) + 4$, or $0 < 20$. Therefore, the point $(-4, 0)$ is a solution to the given inequality.

Distractor Explanations: Choices A, B, and C are incorrect. None of these points is a solution to the given inequality because each point's y -coordinate is greater than the value of $-4x + 4$ for the point's x -coordinate.

Math question 5

Figure A and figure B are both regular polygons. The sum of the perimeter of figure A and the perimeter of figure B is 63 inches. The equation $3x + 6y = 63$ represents this situation, where x is the number of sides of figure A and y is the number of sides of figure B. Which statement is the best interpretation of 6 in this context?

- A) Each side of figure B has a length of 6 inches.
- B) The number of sides of figure B is 6.
- C) Each side of figure A has a length of 6 inches.
- D) The number of sides of figure A is 6.

Key	A
Domain	Algebra
Skill	<i>Linear equations in two variables</i> For a linear equation, interpret a solution, constant, variable, factor, or term based on the context