

PROFICIENCY CHALLENGE 9 ANSWER KEY

AMV = "Answers May Vary"

1	a	$y = (3/4)x$
	b	
	c	Paola had a 2 meter head start. Explanations may cite graph and/or equations.
	d	He should make the race 6 meters long. Explanations may vary, but the point of intersection (8, 6) represents the time and distance that they are both equidistant from Ricardo's starting point and therefore tied.
2	a	Not a valid statement.
	b	Valid statement.
	c	Not a valid statement.
	d	Valid statement.
3		$-3x - 15$ $-3(x + 5)$ $3(-x - 5)$
4		AMV; The slope of the graph of the function should be 3.
5	a	Line A: $y = -(1/2)x - 2$
	b	AMV; As an example, see graph below.
	c	Answers may vary. As an example, the equation of Line B is $y = -2x + 1$.
	d	Line A: $-3 = -(1/2)(2) - 2$ $-3 = -3$ Line B: $-3 = -2(2) + 1$ $-3 = -3$

PROFICIENCY CHALLENGE 10 ANSWER KEY

AMV = "Answers May Vary"

1	C
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2	$P = 10/16$ or $5/8$ or $.625$ or 62.5%
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3	A
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4	<p>AMV; As an example, see the graph and calculations below.</p> <p>Line A: $y = (-1/2)x + 3$ $4 = (-1/2)(-2) + 3$ $4 = 1 + 3$ $4 = 4$</p> <p>Line B: $y = -2x$ $4 = -2(-2)$ $4 = 4$</p>
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PROFICIENCY CHALLENGE 11 ANSWER KEY

AMV = "Answers May Vary"

1	a	11
	b	2×10^{-2}
	c	8×10^8
	d	7×10^5

2	3×10^4 or 30,000
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3	$4.2 \cdot 10^{19}$ AMV; As an example: $(6 \cdot 10^{10})(7 \cdot 10^8)$
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4	a	Tatiana is more accurate.
	b	AMV; Students may refer to the linear interpolation method to make rational number approximations.

5	AMV; As an example: $2^4 \cdot 2^2$
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6	AMV; As an example: $\frac{x^6}{x^9}$ or $(x^{-1})(x^{-3})$
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7	AMV; As an example: $(-3)^{-2}$
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8	a	6^2
	b	x^{-3} or $1/(x^3)$
	c	x^{-1} or $1/x$

PROFICIENCY CHALLENGE 12 ANSWER KEY

AMV = "Answers May Vary"

1 $x = 35^\circ$ $y = 35^\circ$

2 AMV; Check student sketch for accuracy. Sides should be 9-12-15 units.

3 $x = 18\text{cm}$

4 Yes. The diagonal of the cube is about 13.8in. A common mistake students may make is only finding the diagonal of the face (only about 11.3in). Students need to use this information to find the diagonal of the cube.

5

	Bike	No Bike	Total
Skateboard	2	2	4
No Skateboard	10	6	16
Total	12	8	20

6 AMV; The purpose of this problem is to have students think about using tools strategically. They do not need to do each task. As examples:

- a. a ruler
- b. a coordinate plane on graph paper
- c. mental math
- d. a calculator
- e. an ordered list or table of values