

PROFICIENCY CHALLENGE 1 ANSWER KEY

AMV = "Answers May Vary"

1	a	40°C
	b	-10°C
	c	20°C

2	-7 is further from zero because $ -7 > 6 $.
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3	a	N is the number with the greatest value because it is furthest to the right.
	b	L is the number with the greatest absolute value because it is furthest from zero.

4	Each bag can contain $51\frac{1}{3}$ pounds. It is not possible to make them equal weight using only whole numbers.
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5	$b \cdot (-a) = -c$ $-a \cdot (-b) = c$ $\frac{c}{a} = b$ $\frac{-c}{-b} = a$
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6	$P_A > \frac{1}{3}$ $P_B = \frac{1}{3}$
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PROFICIENCY CHALLENGE 2 ANSWER KEY

1		$2g$
2		AMV. As an example: I have p peanuts. Billy gives me 5 more. How many peanuts do I have now?
3		Carlita is correct. Explanations will vary. As an example: The solution is $x = -9$ because -9 satisfies the equation.
4	a	$50 \leq x < 72$ OR $50 \leq x$ and $x < 72$
	b	
	c	Joey: No, because $45 < 50$. Kendra: Yes, because $50 \leq 50$. Luis: Yes, because $50 \leq 66 < 72$. Montessa: No because 72 is not less than 72.
5	a	$\$6000 = 12M$
	b	$M = \$500$
6		$0 < n < 4$ OR $0 < n \leq 3$ <div style="text-align: center;"> </div> <p>NOTE: Some students may include 0 in the solution set if they say you can buy 0 pounds of something. Some students may make a continuous graph (as opposed to the discrete graph above) if they argue that you can buy parts of pounds of nuts. Both of these arguments could be valid. Encourage students to reinforce understanding by explaining the assumptions they are making in their representations.</p>
7	a	AMV. For example: $7 + -5 = 2$.
	b	AMV. For example: $-7 + 5 = -2$.
	c	False because example “b” shows that if the absolute value of the negative number is greater than the value of the positive number, the sum will be negative.
8		22 miles
9		The larger pizza is a better value. Explanations may vary. The unit rate for a small pizza is about 9.42 square inches per dollar. The unit rate for a large pizza is about 9.8125 square inches per dollar. There are several ways to show this answer.

PROFICIENCY CHALLENGE 3 ANSWER KEY

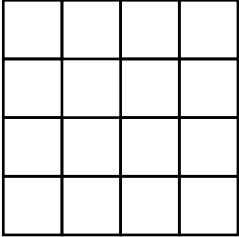
AMV = "Answers May Vary"

1	a		<table border="1" style="margin: auto; border-collapse: collapse;"> <thead> <tr> <th style="padding: 2px 10px;">x</th> <th style="padding: 2px 10px;">y</th> </tr> </thead> <tbody> <tr><td style="padding: 2px 10px;">0</td><td style="padding: 2px 10px;">100</td></tr> <tr><td style="padding: 2px 10px;">1</td><td style="padding: 2px 10px;">250</td></tr> <tr><td style="padding: 2px 10px;">2</td><td style="padding: 2px 10px;">400</td></tr> <tr><td style="padding: 2px 10px;">3</td><td style="padding: 2px 10px;">550</td></tr> <tr><td style="padding: 2px 10px;">4</td><td style="padding: 2px 10px;">700</td></tr> <tr><td style="padding: 2px 10px;">5</td><td style="padding: 2px 10px;">950</td></tr> <tr><td style="padding: 2px 10px;">6</td><td style="padding: 2px 10px;">1000</td></tr> </tbody> </table>	x	y	0	100	1	250	2	400	3	550	4	700	5	950	6	1000	
x	y																			
0	100																			
1	250																			
2	400																			
3	550																			
4	700																			
5	950																			
6	1000																			
	b	$y = 150x + 100$																		
	c	Christiana. She is saving \$150 a month. Luca is saving only \$100 month.																		
	d	Luca started with \$250 in the bank. Christiana started with \$100 in the bank.																		
	e	Christiana. Christiana will save \$1,000 in 6 months. Luca will save \$1000 in about 7 or 8 months.																		
	f	Evaluate student graphs for accuracy.																		
	g	Yes. After 3 months they will both have \$550. This is the point where the graphs of the line intersect.																		

2	<p>Supporting example: $\left(\frac{1}{3}\right) \div \left(\frac{5}{3}\right) = \left(\frac{1}{5}\right)$</p> <p>Contradicting example: $\left(\frac{1}{3}\right) \div \left(\frac{1}{2}\right) = \left(\frac{2}{3}\right)$</p> <p>Her claim is only true if $\frac{1}{3}$ is divided by a fraction greater than 1.</p>
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PROFICIENCY CHALLENGE 4 ANSWER KEY

AMV = "Answers May Vary"

1	a		<table border="1"> <tr> <td>Step # (x)</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td># of squares (y)</td> <td>1</td> <td>4</td> <td>9</td> <td>16</td> <td>25</td> </tr> </table>	Step # (x)	1	2	3	4	5	# of squares (y)	1	4	9	16	25
	Step # (x)	1	2	3	4	5									
# of squares (y)	1	4	9	16	25										
b	Evaluate student graphs for accuracy.														
c	AMV. As an example: The data does not have a constant rate of change.														

2	a	Marco's distance is represented by Line 1. Patricio's distance is represented by Line 2.
	b	Marco runs $\frac{3}{4}$ meters per second. Patricio runs $\frac{1}{4}$ meters per second.
	c	Answers may vary. The point of intersection (8, 6) represents the time (8 seconds) and distance (6 meters) that Marco passes Patricio. Alternately, the point represents when they are tied.
	d	Patricio had a 4 meter head start. Because at $t = 0$, he is already 4 meters from the start.

3	$(\$560)(1.15)$ and $\left(\frac{x}{560}\right) = \left(\frac{115}{100}\right)$
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4	$b \cdot (-c) = a$ $c \cdot (-b) = -a$ $\frac{-a}{c} = b$ $-\left(\frac{c}{-c}\right) = 1$
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5	a	$y = 12 + 0.50t$
	b	<p style="text-align: center;">Money Spent at the Amusement Park</p> 