PROFICIENCY CHALLENGE 5 ANSWER KEY

AMV = "Answers May Vary"

1		$x = -4$

2		AMV. As an example: Both sides of the equation are equivalent expressions.

3		AMV. As an example: The equation resolves to -2 = 7 and this can never be true.

4	a	$x - 3$
	b	$x + 3$
	c	$16x - 4$

5		35 miles

6		Answers will vary depending on how students label the increments on the number line provided. Check answers for accuracy.

7	a	$y = \left(\dfrac{25}{2}\right)x$ OR $y = 12.5x$
	b	
	c	After five hours, Wally will have earned $62.50. The coordinate (5, 62.5) is on the graph.

Charges at a Car Wash

Money Charged ($)

Hours Worked

PROFICIENCY CHALLENGE 6 ANSWER KEY

AMV = "Answers May Vary"

1	a	AMV. As an example: $8x - (3x + 2) + x = \mathbf{6}x + \mathbf{17}$ The coefficient for x must be 6. The constant term can be anything except -2.
	b	AMV. As an example: $8x - (3x + 2) + x = \mathbf{5}x + \mathbf{7}$ The coefficient for x can be anything except 6. The constant term can be anything.
	c	$8x - (3x + 2) + x = \mathbf{6}x + \mathbf{-2}$ This is the only solution.

2		Yes. A shirt costs $7.20 and a hat costs $4.50. Ten shirts and hats will cost $117.

3		$x = -6$

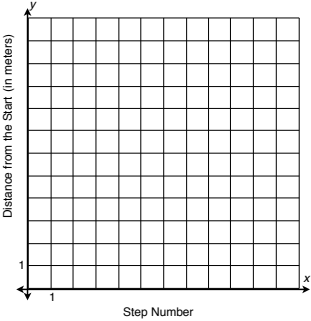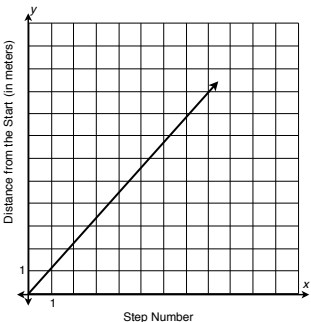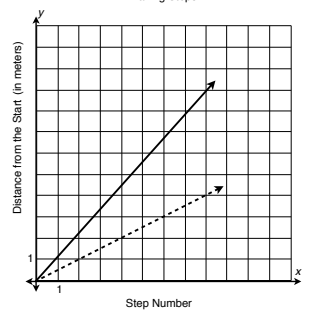|		
4	a	Zacky is correct under multiplication and division.
	b	Zacky is incorrect under addition and subtraction.
	c	AMV. As an example: The products and quotients of two negative numbers are positive.

5		No. The equation has no solution because $2.1 \neq -8$

PROFICIENCY CHALLENGE 7 ANSWER KEY

AMV = "Answers May Vary"

1	a	Yes. The graph of the function is a straight line with a constant rate of change.
	b	iii. AMV.
	c	iv. AMV. As an example: The rate of change is not constant.
	d	ii

2	a	 **Taking Steps** _(blank grid: y-axis "Distance from the Start (in meters)", x-axis "Step Number")_
	b	$D = 1.1n$ **Taking Steps** _(grid with line through origin, y-axis "Distance from the Start (in meters)", x-axis "Step Number")_
	c	Dashed line **Taking Steps** _(grid with solid line and dashed line through origin, y-axis "Distance from the Start (in meters)", x-axis "Step Number")_
	d	AMV. As an example: Daniel took larger steps because the value of the slope in his equation is greater. The graph of his function is also steeper.

3	a	100 meters per minute.
	b	Sandy's Walk to the Park

Sandy's Walk to the Park

4						

x (pounds of bananas)	0	1	2	3	4
y (cost in $)	0	0.50	1.00	1.50	2.00

Cost of Bananas

	a	$y = 0$ when $x = 0$ (0, 0) represents the cost of 0 bananas (which is $0).
	b	$y = 0.50$ when $x = 1$ (1, 0.50) represents the cost of 1 pound of bananas (which is $0.50) and also shows the unit rate.

5	AMV; The input must be -2, 0, 2, or 3. As an example:

x (input)	-2	0	2	3	**3**
y (output)	3	5	7	8	**10**

PROFICIENCY CHALLENGE 8 ANSWER KEY

AMV = "Answers May Vary"

1	a	

Function	A	B	C	D	E
Slope	-2	$\frac{1}{2}$	$\frac{1}{2}$	0	$-\frac{4}{5}$

	b	The graphs of functions B and C are parallel because they have equivalent slopes.
	c	

Function	A	B	C
y-inercept	7	4	$\frac{1}{2}$

	d	Line D is horizontal because the slope is zero and the graph of the line is flat.

2	Yes. Both sides of the equation are equivalent expressions.

3	a	$y = 5 + 0.50t$
	b	

Cost of a Community Fair / Cost ($) / Number of Tickets Bought

	c	The graph is linear. The slope of 0.50 represents the cost of each ride ticket.

4	a	AMV. As an example: (-1, 7)
	b	$x = -1$
	c	No

5	a	AMV; As an example: (-7, -5)
	b	$y = -5$
	c	Yes

6	a	AMV. As an example: Lando ran quickly to the store. Then he got tired and slowed down. He spent time at the store. Then he started to walk back home. He stopped to talk to a neighbor. He then walked quickly home.
	b	Yes. The graph passes the vertical line test.