Lesson 2.4.1: Illustrating Linear Functions

Total points = 49

A. Answers

- 1. Yes \checkmark , $m = -6 \checkmark$, $b = -7 \checkmark$, degree = 1 \checkmark
- 2. Yes \checkmark , $m = 0 \checkmark$, $b = -4 \checkmark$, degree = 0 \checkmark
- 3. Yes \checkmark , $m = 2 \checkmark$, $b = -6 \checkmark$, degree = 1 \checkmark
- 4. No **√**
- 5. Yes \checkmark , $m = 0 \checkmark$, $b = 0 \checkmark$, degree = undefined \checkmark

B. Answers

- 1. Linear 🗸
- 4. Not linear ✓
- 2. Linear 🗸
- 3. Linear √
- 5. Linear ✓

C. Solutions

- 1. If f(x) = 4x 1, find:
- a. f(0) = 4(0) 1 b. f(-1) = 4(-1) 1 c. $f(\frac{1}{2}) = 4(\frac{1}{2}) 1$ $f(\frac{1}{2}) = 2 - 1$ f(-1) = -5f(0) = -1
 - $f(\frac{1}{2}) = 1$
- 2. If f(x) = -2x + 3, find: a. $f(1) = -2(1) + 3\checkmark$ b. $f(-2) = -2(-2) + 3\checkmark$ c. $f(\frac{3}{2}) = -2(\frac{3}{2}) + 3\checkmark$ $f(1) = -2 + 3\checkmark$ $f(-2) = 4 + 3\checkmark$
 - f(1) = 1
- f(-2) = 7
- $f(\frac{3}{2}) = -3 + 3\checkmark$
 - $f(\frac{3}{2}) = 0\checkmark$

- 3. If $f(x) = \frac{3}{2}x + 1$, find:
- a. $f(2) = (\frac{3}{2})(2) + 1$ b. $f(-4) = (\frac{3}{2})(-4) + 1$
- $f(-4) = -6 + 1\checkmark$
- f(-4) = -5
- c. $f(\frac{1}{3}) = (\frac{3}{2})(\frac{1}{3}) + 1$ $f(\frac{1}{3}) = \frac{1}{2} + 1\checkmark$
 - $f(\frac{1}{3}) = \frac{3}{2}\checkmark$

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B. Answers

- Linear ✓
- 4. Not linear ✓
- 2. Linear √
- 3. Linear √
- 5. Linear ✓

C. Solutions

- 1. If f(x) = 4x 1, find:
- a. f(0) = 4(0) 1 b. f(-1) = 4(-1) 1 c. $f(\frac{1}{2}) = 4(\frac{1}{2}) 1$ $f(-1) = -5\checkmark$ $f(\frac{1}{2}) = 2 - 1\checkmark$

 $f(\frac{1}{2}) = 1$

- 2. If f(x) = -2x + 3, find:
- a. $f(1) = -2(1) + 3\checkmark$ b. $f(-2) = -2(-2) + 3\checkmark$ c. $f(\frac{3}{2}) = -2(\frac{3}{2}) + 3\checkmark$ $f(1) = -2 + 3\checkmark$ $f(-2) = 4 + 3\checkmark$ $f(\frac{3}{2}) = -3 + 3\checkmark$
- - $f(\frac{3}{2}) = 0$

- 3. If $f(x) = \frac{3}{2}x + 1$, find:
- a. $f(2) = (\frac{3}{2})(2) + 1$ b. $f(-4) = (\frac{3}{2})(-4) + 1$ f(2) = 3 + 1 f(-4) = -6 + 1 f(-4) = -5

- c. $f(\frac{1}{3}) = (\frac{3}{2})(\frac{1}{3}) + 1$
 - $f(\frac{1}{3}) = \frac{1}{2} + 1\checkmark$
 - $f(\frac{1}{3}) = \frac{3}{2} \checkmark$

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- 4. Not linear ✓ Linear ✓
- B. Answers
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- 1. If f(x) = 4x 1, find:
- a. f(0) = 4(0) 1 b. f(-1) = 4(-1) 1 c. $f(\frac{1}{2}) = 4(\frac{1}{2}) 1$ $f(-1) = -4 - 1\checkmark$ f(0) = 0 - 1 $f(\frac{1}{2}) = 2 - 1$ f(-1) = -5

$$f(0) = -1$$

- 2. If f(x) = -2x + 3, find:
- a. $f(1) = -2(1) + 3\sqrt{b}$. $f(-2) = -2(-2) + 3\sqrt{c}$. $f(\frac{3}{2}) = -2(\frac{3}{2}) + 3\sqrt{c}$ $f(1) = -2 + 3\checkmark$ $f(-2)=4+3\checkmark$
- f(-2) = 7
- $f(\frac{3}{2}) = -3 + 3\checkmark$

 $f(\frac{1}{2}) = 1$

- $f(\frac{3}{2}) = 0\checkmark$
- 3. If $f(x) = \frac{3}{2}x + 1$, find:
- a. $f(2) = (\frac{3}{2})(2) + 1$ b. $f(-4) = (\frac{3}{2})(-4) + 1$
 - f(-4) = -6 + 1
 - $f(2) = 3 + 1\checkmark$ $f(2) = 4\checkmark$
- f(-4) = -5
- c. $f(\frac{1}{3}) = (\frac{3}{2})(\frac{1}{3}) + 1$ $f(\frac{1}{3}) = \frac{1}{2} + 1\checkmark$

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- 1. If f(x) = 4x 1, find:
- a. f(0) = 4(0) 1 b. f(-1) = 4(-1) 1 c. $f(\frac{1}{2}) = 4(\frac{1}{2}) 1$ $f(-1) = -5\checkmark$ $f(\frac{1}{2}) = 2 - 1\checkmark$ f(0) = -1
- 2. If f(x) = -2x + 3, find: $f(1) = -2 + 3 \checkmark \text{ in i.i.}$ $f(1) = -2(1) + 3 \checkmark \text{ b. } f(-2) = -2(-2) + 3 \checkmark \text{ c. } f(\frac{3}{2}) = -2(\frac{3}{2}) + 3 \checkmark$ $f(1) = -2 + 3 \checkmark \qquad f(-2) = 4 + 3 \checkmark$ $f(1) = 1 \checkmark \qquad f(-2) = 7 \checkmark \qquad f(\frac{3}{2}) = -3 + 3 \checkmark$
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 $f(\frac{1}{2}) = 1$

- 3. If $f(x) = \frac{3}{2}x + 1$, find:
- a. $f(2) = (\frac{3}{2})(2) + 1$ b. $f(-4) = (\frac{3}{2})(-4) + 1$ f(2) = 3 + 1 f(-4) = -6 + 1 f(-4) = -5
- c. $f(\frac{1}{3}) = (\frac{3}{2})(\frac{1}{3}) + 1$
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