

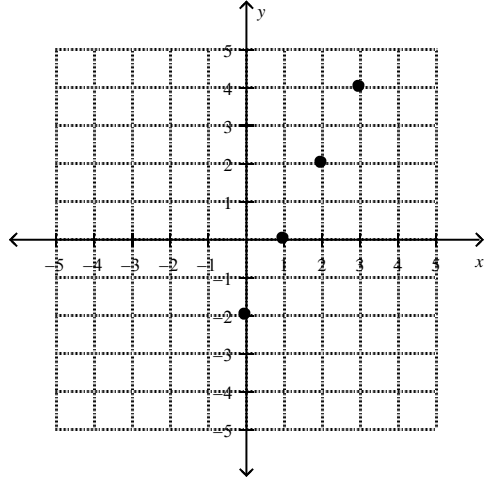
Foundations of Math 10 LG 7/8

Version A

/20

Expectation 1: explain and express the meaning of domain and range

1. Determine the domain and range for the following relation. (1 mark)



$$D: X = 0, 1, 2, 3$$

$$R: y = -2, 0, 2, 4$$

Expectation 2: sort relations into functions and non-functions

2. Is the following relation a function? Explain how you know. (2 Marks)
 $\{(3, 4), (6, 8), (9, 5), (3, 3)\}$

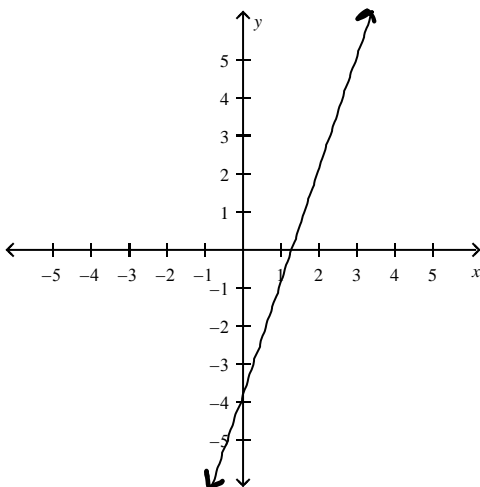
NO. WHEN $X=3$, THERE ARE 2 POSSIBLE y VALUES.

3. Given the equation $f(x) = -6x - 2$, determine $f(5)$ (1 mark)

$$f(5) = -6(5) - 2 = -30 - 2 = -32$$

Expectation 3: use function notation

4. State the domain of this function in set notation. (1 mark)



$$D: \{x \mid x \in \mathbb{R}\}$$

$$R: \{y \mid y \in \mathbb{R}\}$$

Expectation 4: graph linear functions

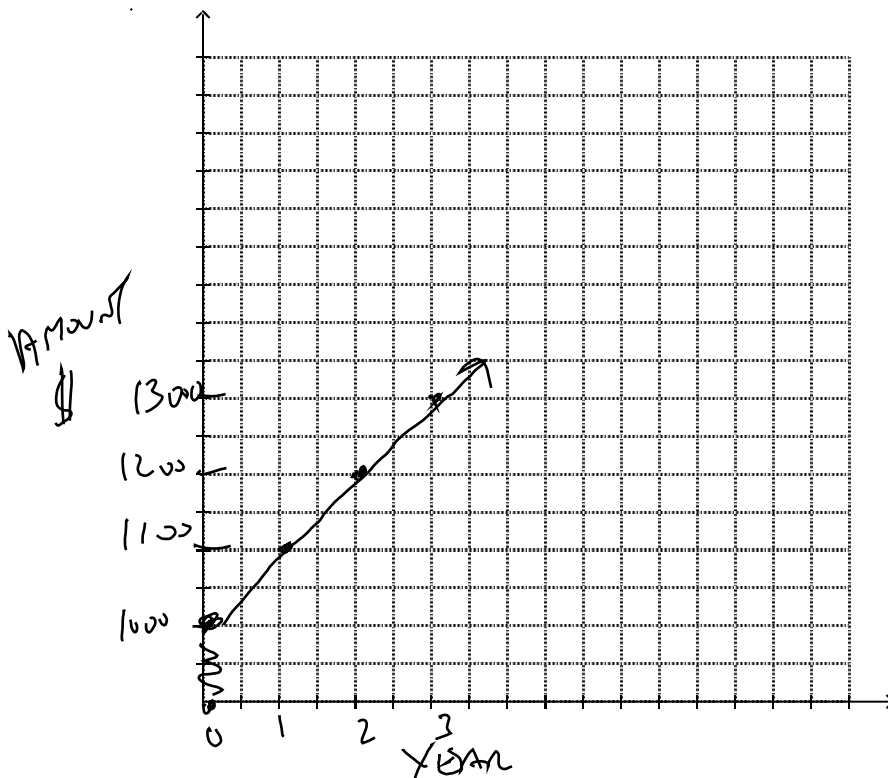
5. An amount of \$1000 is deposited in a savings account and earns simple interest. The table shows the amount of money in the account at the end of each year.

Year	Amount (\$)
0	1000
1	1100
2	1200
3	1300

- a) Is this a linear or non-linear relation? (1 mark)

LINEAR

- b) Graph the relation. (2 marks)



- c) Which is the dependent variable? Which is the independent variable? (1 mark)

↑
Amount

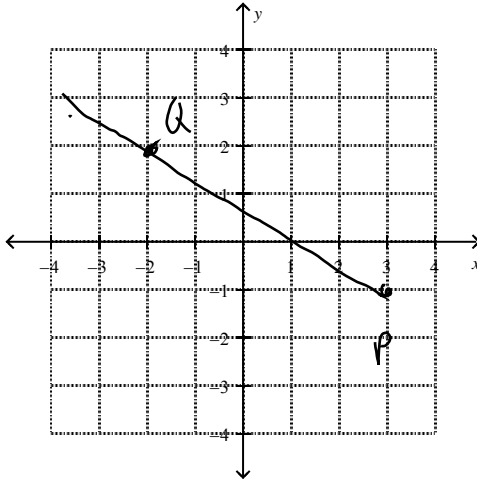
↑
YEAR

- d) How long will it take for the account to reach a value of \$2200? (1 mark)

12 YEARS

6. Points Q(3, -1) and P(-2, 2) are on a line. (2 marks)

a) Plot points Q and P and draw a line through them.



b) Determine the slope of the line.

$$\begin{aligned} \text{RISE} &= -3 \\ \text{RUN} &= 5 \end{aligned}$$

$$\text{SLOPE} = -\frac{3}{5}$$

Expectation 5: determine the slope of a line and use slope to draw lines

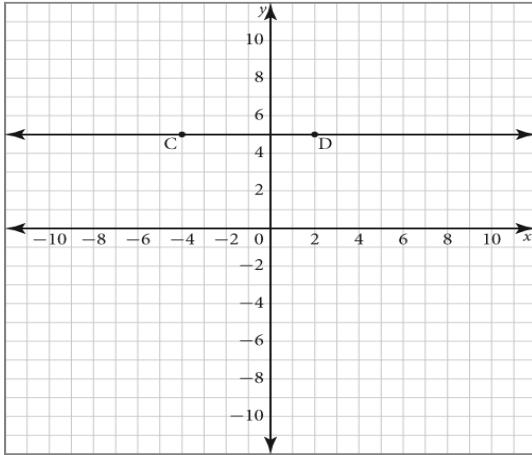
7. Determine the slope given the rise and the run. (1 mark)
rise = 4, run = -1

$$M = \frac{4}{-1} = -4$$

8. Determine the rise and the run from the first point to the second point. (1 mark)
P(2, 0) and Q(-2, 4)

$$\text{SLOPE} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{4 - 0}{-2 - 2} = \frac{4}{-4} = -1$$

9. Use the graph to answer parts a) to d). (2 Marks)



- a) State the coordinates of points C and D.

$$\underline{C(-4, 5) \quad D(2, 5)}$$

- b) What is the rise from point C to point D?

$$\underline{0}$$

- c) What is the run from point C to point D?

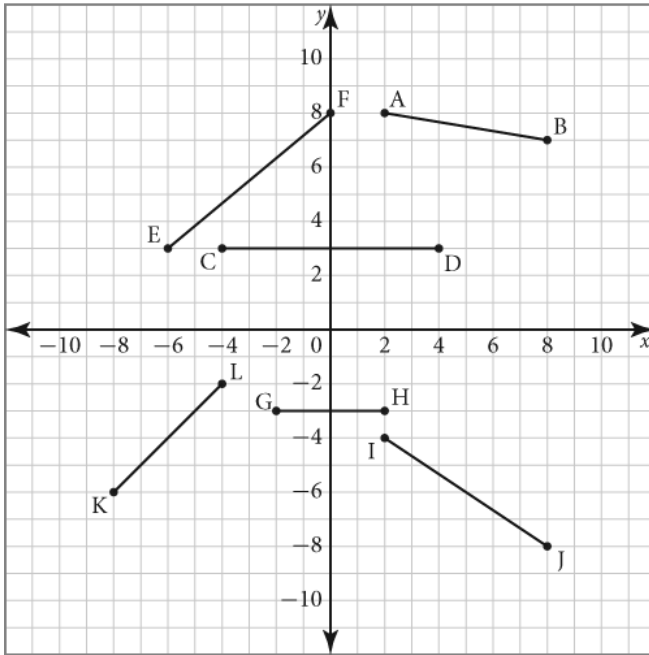
$$\underline{6}$$

- d) Find the slope of the line through points C and D.

$$\underline{\frac{0}{6} = 0}$$

Expectation 6: explain how slope represents a rate of change

10. Which of the following line segments have a negative slope? (1 mark)



AB
IJ

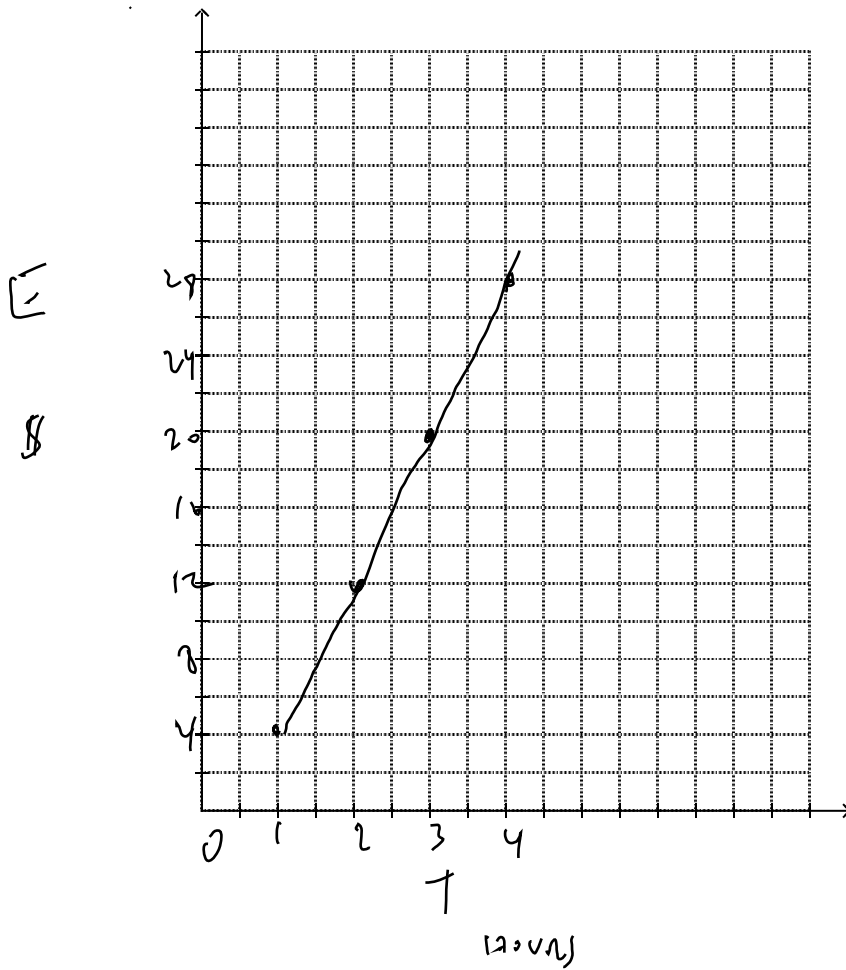
Expectation 7: solve problems involving slope

11. Jill earns \$8 per hour working at a fast-food restaurant. She takes the bus to and from work for a total of \$4 a day. Jill's daily net earnings can be represented by the function $E(t) = 8t - 4$ where t is the time in hours that Jill works and E represents her earnings in dollars. (3 marks)

a) Make a table of values of Jill's net earnings for values of t from 1 to 4.

t	E
1	4
2	12
3	20
4	28

b) Graph the relation.



c) How much does Jill earn if she works for 8 h?

$$E = 8t - 4$$

$$E = 8(8) - 4$$

$$= 64 - 4$$

$$= \$60$$

Foundations of Math 10 LG 8 Version A
Answer Section

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SHORT ANSWER

1. ANS:
Domain: 0,1,2,3

Range: -2,0,2,4

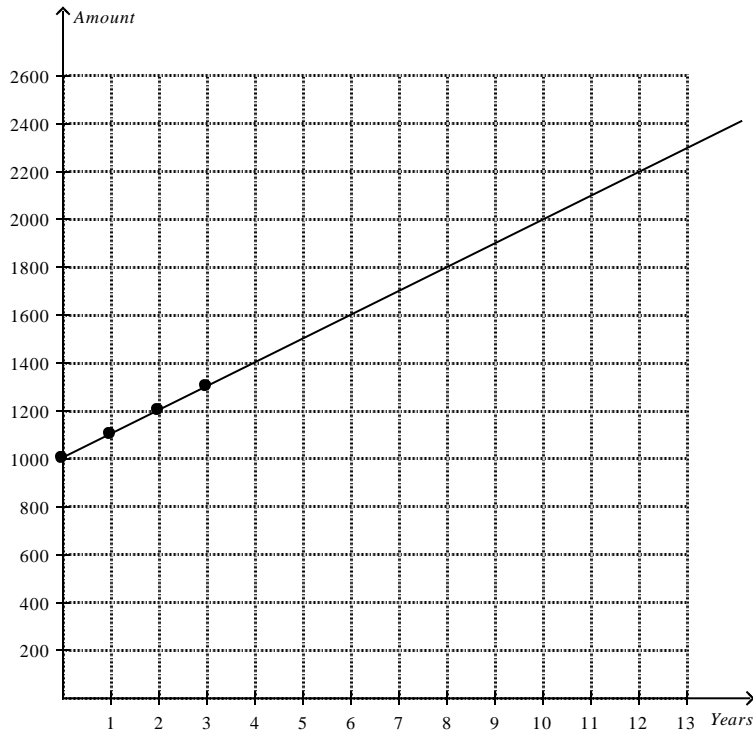
PTS: 1 DIF: B OBJ: Section 6.3 NAT: RF1
TOP: Domain and Range KEY: domain | range | number line | set notation | list
2. ANS:
No.
There are two y values for a single x value (when x is 3).

PTS: 1
3. ANS:
-32

PTS: 1
4. ANS:
 $\{x|x \in \mathbb{R}\}$

PTS: 1
5. ANS:
a) The relation is linear because for each year, there is a constant increase of \$100 in interest.

b) **Amount in a Savings Account**



c) The dependent variable is the amount in the account, and the independent variable is the year.

d) From the graph, it will take 12 years for the account to reach a value of \$2200.

PTS: 1 DIF: B OBJ: Section 6.1 | Section 6.2
 NAT: RF1 | RF4 TOP: Graphs of Relations | Linear Relations
 KEY: linear relation | graph points | interpret a graph | dependent variable | independent variable

6. ANS:

b) $-\frac{3}{5}$

PTS: 1 DIF: B OBJ: Section 6.5 NAT: RF3 | RF4
 TOP: Slope KEY: graph points | rise | run | slope

7. ANS:

$$m = \frac{\text{rise}}{\text{run}}$$

$$m = \frac{4}{-1}$$

$$m = -4$$

PTS: 1 DIF: A OBJ: Section 6.5 NAT: RF3

TOP: Slope KEY: slope | rise | run

8. ANS:

$$\text{rise} = 4 - 0$$

Name: _____

Date: _____

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$$\begin{aligned} &= 4 \\ \text{run} &= -2 - 2 \\ &= -4 \end{aligned}$$

PTS: 1

DIF: B

OBJ: Section 6.5

NAT: RF3

TOP: Slope

KEY: slope | rise | run

9. ANS:

a) C(-4, 5), D(2, 5)

b) rise = 5 - 5

$$= 0$$

The rise is 0.

c) run = 2 - (-4)

$$= 6$$

The run is 6.

d) $m = \frac{\text{rise}}{\text{run}}$

$$m = \frac{0}{6}$$

$$m = 0$$

The slope is 0.

PTS: 1

DIF: B

OBJ: Section 6.5

NAT: RF3

TOP: Slope

KEY: rise | run | slope

10. ANS:

AB

IJ

PTS: 1

11. ANS:

a)

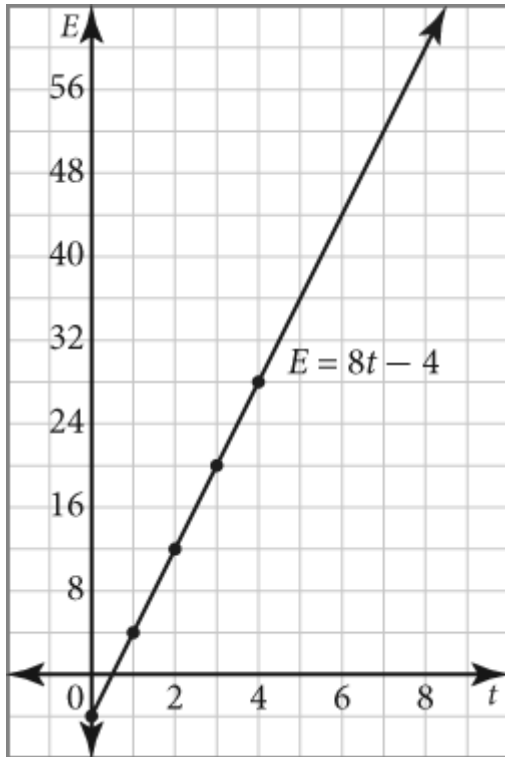
t	$E(t)$
0	-4
1	4
2	12
3	20
4	28

b) **Jill's Earnings**

Name: _____

Date: _____

LG #7/8



c) Substitute $t = 8$ into the equation $E(t) = 8t - 4$.

$$E(8) = 8(8) - 4$$

$$E(8) = 64 - 4$$

$$E(8) = 60$$

Jill earns \$60 for 8 h of work.

PTS: 1

DIF: B

OBJ: Section 6.1 | Section 6.2 | Section 6.4

NAT: RF1 | RF2 | RF4 | RF8

TOP: Graphs of Relations | Linear Relations | Functions

KEY: create a graph | function notation | table of values | interpret a situation