FOMP 10 Chapter 6 Review Pack v1
Answer Section

SHORT ANSWER

1. ANS:
20

PTS: 1 DIF: 1-2 OBJ: Section 6.5 NAT: RF3
TOP: Slope KEY: rise | ordered pairs

2. ANS:
2

PTS: 1 DIF: 1-2 OBJ: Section 6.5 NAT: RF3
TOP: Slope KEY: rise | ordered pairs

3. ANS:
4

PTS: 1 DIF: 1-2 OBJ: Section 6.5 NAT: RF3
TOP: Slope KEY: rise | ordered pairs

4. ANS:
–1

PTS: 1 DIF: 1-2 OBJ: Section 6.4 NAT: RF2
TOP: Functions KEY: evaluate function

5. ANS:
–17

PTS: 1 DIF: 1-2 OBJ: Section 6.4 NAT: RF2
TOP: Functions KEY: table of values | linear relations | identify missing value

6. ANS:
12

PTS: 1 DIF: 1-2 OBJ: Section 6.5 NAT: RF3
TOP: Slope KEY: rise | ordered pairs

7. ANS:
5

PTS: 1 DIF: 1-2 OBJ: Section 6.5 NAT: RF3
TOP: Slope KEY: rise | ordered pairs

8. ANS:
4

PTS: 1 DIF: 1-2 OBJ: Section 6.5 NAT: RF3
TOP: Slope KEY: rise | ordered pairs

9. ANS:
line segments AB and IJ
A line segment with a negative slope slants down from left to right. So, only line segments AB and IJ have negative slopes.

PTS: 1 DIF: 1-2 OBJ: Section 6.5 NAT: RF3
TOP: Slope KEY: negative slope | graph

10. ANS:
discrete

PTS: 1 DIF: 1-2 OBJ: Section 6.2 NAT: RF1
TOP: Linear Relations KEY: linear relation | discrete data

11. ANS:
continuous

PTS: 1 DIF: 1-2 OBJ: Section 6.2 NAT: RF1
TOP: Linear Relations KEY: linear relation | continuous data

12. ANS:

a)

Hours	Earnings ($)
0	0
1	9
2	18
3	27
4	36
5	45

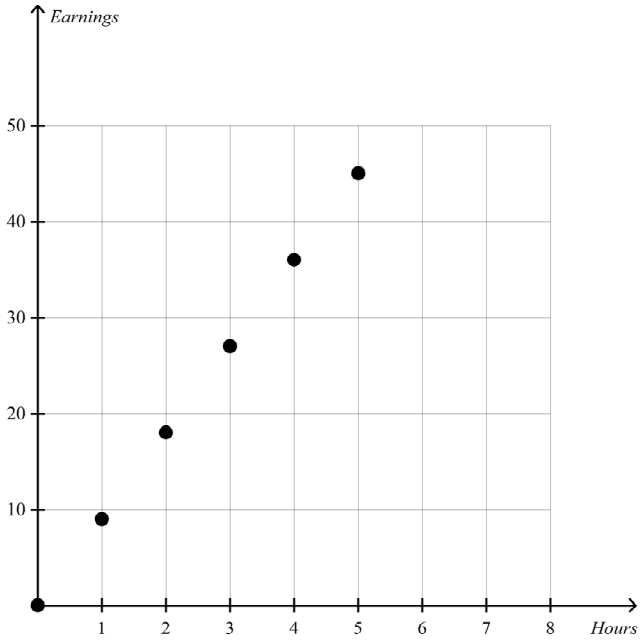
b) The rate of change is the slope of the graph.

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

$m = \frac{9-0}{1-0}$

$m = 9$

c)



d) From the graph, it would take 8 h for Sam to earn $72.

e) This is a linear relation because the plotted points can be joined to form a straight line. With each increase of 1 in the number of hours, the earnings increase by 9.

f) By the vertical line test, this is a function.

g) Domain: all integers greater than or equal to 0
Range: all integers greater than or equal to zero that are a multiple of 9

PTS: 1 DIF: 1-2

OBJ: Section 6.1 | Section 6.2 | Section 6.3 | Section 6.4 | Section 6.5
NAT: RF1 | RF2 | RF3 | RF4
TOP: Graphs of Relations | Linear Relations | Domain and Range | Functions |Slope
KEY: create a graph | table of values | slope | interpret a graph | domain | range | vertical line test

13. ANS:
line segments CD, GH, and IJ
A horizontal line segment has a slope of zero. So, only line segments CD, GH, and IJ have slopes of zero.

PTS: 1 DIF: 1-2 OBJ: Section 6.5 NAT: RF3
TOP: Slope KEY: zero slope | graph

14. ANS:
independent

PTS: 1 DIF: 1-2 OBJ: Section 6.2 NAT: RF4
TOP: Linear Relations KEY: variable | independent

15. ANS:
dependent

PTS: 1 DIF: 1-2 OBJ: Section 6.2 NAT: RF4
TOP: Linear Relations KEY: variable | dependent

16. ANS:
$-\frac{1}{8}$
Pick any two points to find the slope. For example, use (–16, –16) and (–8, –18).

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

$= \frac{-31-(-30)}{8-0}$

$= -\frac{1}{8}$

The slope is $-\frac{1}{4}$.

PTS: 1 DIF: 3-4 OBJ: Section 6.5 NAT: RF3
TOP: Slope KEY: calculate slope | table of values

17. ANS:
$\frac{1}{4}$

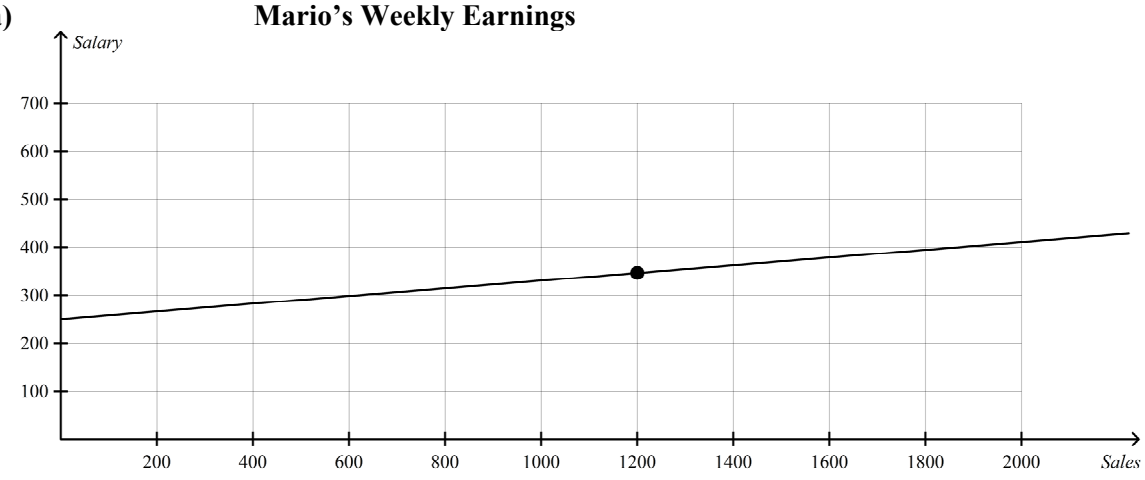
PTS: 1 DIF: 3-4 OBJ: Section 6.5 NAT: RF3
TOP: Slope KEY: rise | ordered pairs

18. ANS:
$\{y | y \le 9, y \in \mathrm{R}\}$

PTS: 1 DIF: 3-4 OBJ: Section 6.3 NAT: RF8
TOP: Domain and Range KEY: range | set notation

19. ANS:

a)



b) The slope is 0.08. This represents the commission of 8%, or $8 of earnings for each $100 of sales.

c) From the graph in part a), Mario's sales were $1200 in the week that he earned $346.

$$\frac{346-250}{0.08}=1200$$

PTS: 1 DIF: 3-4 OBJ: Section 6.1 | Section 6.2 | Section 6.5
NAT: RF1 | RF3 | RF4 TOP: Graphs of Relations | Linear Relations | Slope
KEY: graph points | slope | interpret a graph

20. ANS:

Example:

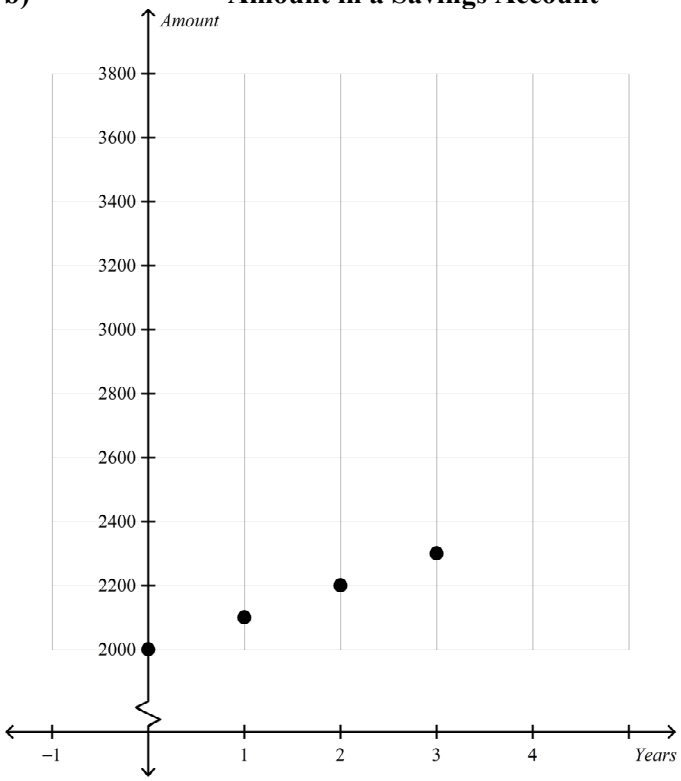
A cyclist biked away from the starting point at a constant rate for the first 15 min. For the next 15 min, the cyclist pedaled at an increased constant rate. The cyclist then turned around and travelled at a constant speed, returning to the starting point.

PTS: 1 DIF: 3-4 OBJ: Section 6.1 NAT: RF1
TOP: Graphs of Relations KEY: interpret a graph

21. ANS:

a) The relation is linear because for each year, there is a constant increase of $100 in interest.

b)



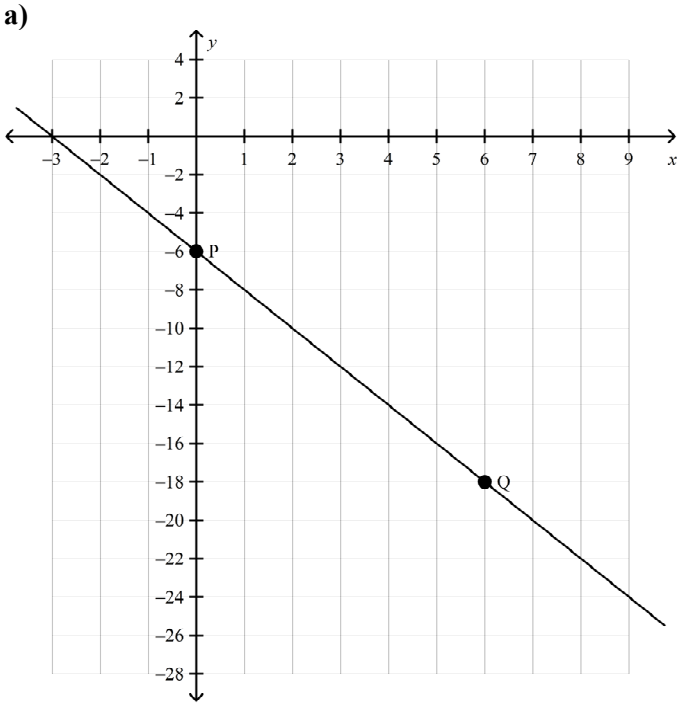
c) The dependent variable is the amount in the account, and the independent variable is the year.

d) From the graph, it will take 14 years for the account to reach a value of $3400.

PTS: 1 DIF: 3-4 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

22. ANS:

a)



b) rise = –6 – (–18)
The rise is 12.

c) run = 0 – 6
The run is –6.

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

$m = \frac{12}{-6}$

$m = -2$

The slope is –2.

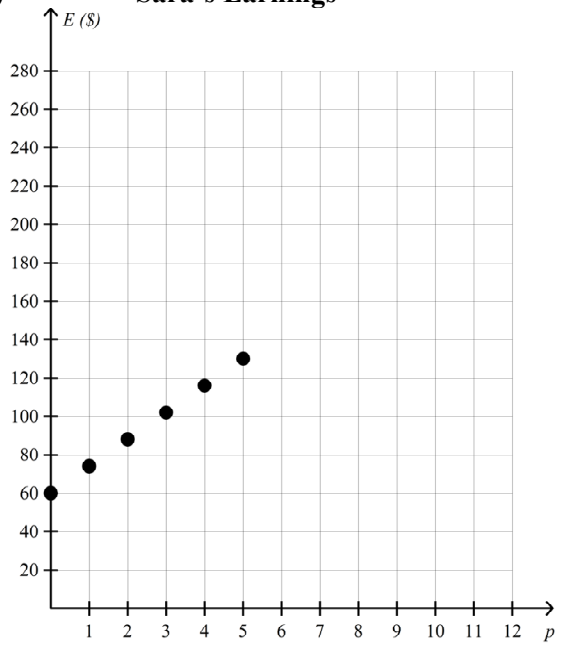
PTS: 1 DIF: 3-4 OBJ: Section 6.5 NAT: RF3 | RF4
TOP: Slope KEY: graph points | rise | run | slope

23. ANS:

a)

p	E ($)
0	60
1	74
2	88
3	102
4	116
5	130

b) **Sara's Earnings**



c) Yes, the graph is a function because the graph is a straight line and passes the vertical line test

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

$m = \frac{74 - 60}{1 - 0}$

The slope of the graph is 14.

e) Substitute $E = 312$ into the equation $E = 14p + 60$.

$312 = 14p + 60$

$18 = p$

Sara has to sell 18 purses to earn $312 in a day.

PTS: 1 DIF: 3-4 OBJ: Section 6.1 | Section 6.4 | Section 6.5
NAT: RF1 | RF2 | RF3 | RF4 TOP: Graphs of Relations | Functions | Slope
KEY: create a graph | vertical line test | table of values | slope

24. ANS:
73

PTS: 1 DIF: 5-6 OBJ: Section 6.4 NAT: RF2
TOP: Functions KEY: evaluate function

25. ANS:
$\{y | y \neq 0, y \in \mathrm{R}\}$

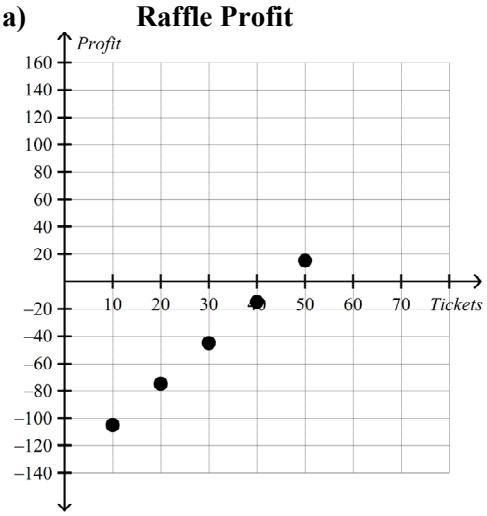
PTS: 1 DIF: 5-6 OBJ: Section 6.3 NAT: RF8
TOP: Domain and Range KEY: range | set notation

26. ANS:
$\{x | x \neq -6, x \in \mathrm{R}\}$

PTS: 1 DIF: 5-6 OBJ: Section 6.3 NAT: RF8
TOP: Domain and Range KEY: domain | set notation

27. ANS:

a)



b) This is a linear relation as the data points form a straight line. With each increase of 1 in the number of tickets sold, the profit increases by $3.

c) The data points are discrete, as there are no partial raffle tickets.

d) Domain: $\{t \mid t \geq 0, t \in \mathrm{N}\}$
Range: starting from -135 and increasing by multiples of 3.

e) From the graph, the number of tickets that must be sold for the raffle to break even is 45.

PTS: 1 DIF: 5-6 OBJ: Section 6.2 | Section 6.3
NAT: RF1 TOP: Linear Relations | Domain and Range
KEY: discrete relation | graph points | interpret a graph | domain | range

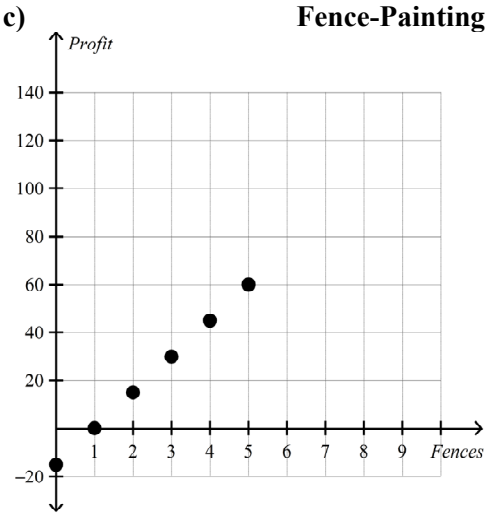
28. ANS:

a)

Fences Painted	Profit ($)
0	–15
1	0
2	15
3	30
4	45
5	60

b) The relation is linear, because for every increase in the number of fences painted, the profit increases by a constant amount of $15.

c)



The data are discrete, as there is no payment for a partially painted fence

d) Extrapolating the graph, we see that Clark would have to paint 15 fences to make $480.

PTS: 1 DIF: 5-6 OBJ: Section 6.1 | Section 6.2
NAT: RF1 | RF2 TOP: Graphs of Relations | Linear Relations
KEY: discrete relation | graph points | extrapolate from graph

29. ANS:

a) The initial height of Aleric's balloon is 10 m. Karlinda's balloon is 30 m above the ground.
b) Aleric's balloon is rising at 20 m/min; Karlinda's is rising at 10 m/min.
c) The balloons are at the same height of 50 m when $t = 2$, that is, after 2 min.

PTS: 1 DIF: 7-8 OBJ: Section 6.1 NAT: RF1
TOP: Graphs of Relations KEY: interpret a graph