Name: _____ Period: _____ Date: _____ ID: G

M10 - Chapter 5 Test *PRACTICE TEST* /40. Key.

/20 Multiple Choice: Choose the BEST answer. Record your answer on the line.

A 1. Which set of ordered pairs does not represent a function?

i) $\{(1,4),(2,7),(3,10),(1,-2)\}$

ii) $\{(3,5),(4,-6),(6,8),(7,-9)\}$

iii) $\{(-4,-7),(-2,-5),(-3,4),(-1,6)\}$

iv) $\{(6,0),(3,-2),(-5,4),(-7,0)\}$

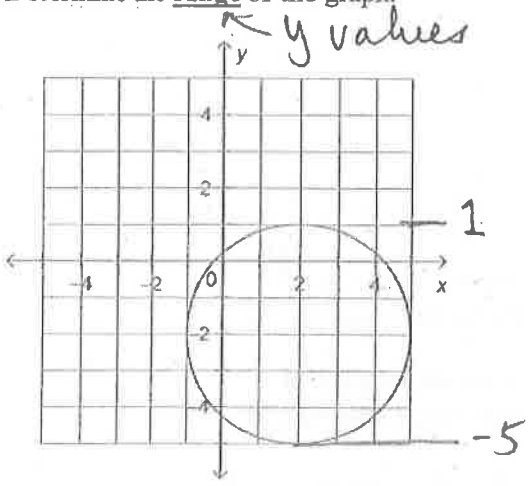
Vert line

same x, diff y.

a. i b. iii c. ii d. iv

A 2. Determine the range of the graph.

y values



$-5 \le y \le 1$

a. $-5 \le y \le 1$ c. $-1 \le x \le 5$

b. $-5 \le y \le 5$ d. $-1 \le y \le 1$

A 3. For a service call, an electrician charges a \$50 flat fee, plus \$40 for every 30 min worked. Determine the rate of change of this linear relation.

slope

a. \$80/h c. \$90/h

b. \$40/h d. \$50/h

\$40 per 30 min

= \$80 per hour!

/3

Name: _____ ID: G

C

4. Which set of ordered pairs represents a linear relation?

i) $\{(1, 7), (2, 5), (3, 3), (4, 1), (5, -1)\}$ ✓

ii) $\{(2, 5), (3, 7), (4, 9), (5, 10), (6, 11)\}$ ×

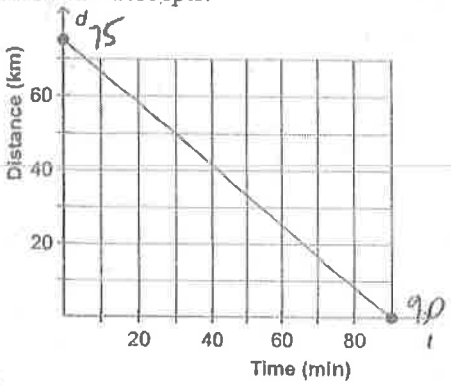
iii) $\{(-3, 9), (-2, 4), (-1, 1), (0, 0), (1, 1)\}$ ×

iv) $\{(-1, 3), (9, 2), (-3, 1), (10, 0), (-1, -1)\}$ ×

a. iii
b. iv
c. i
d. ii

A

5. This graph shows distance, d kilometres, as a function of time, t minutes. Determine the vertical and horizontal intercepts.



a. Vertical intercept: 75
Horizontal intercept: 90

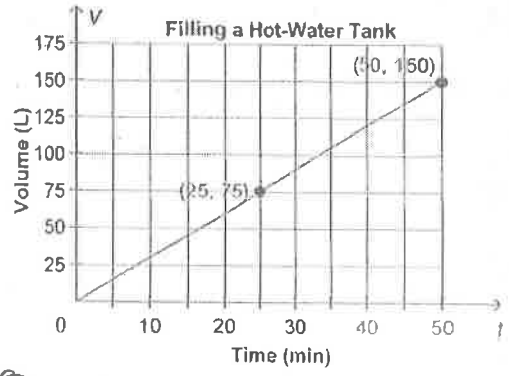
b. Vertical intercept: 60
Horizontal intercept: 90

c. Vertical intercept: 75
Horizontal intercept: 60

d. Vertical intercept: 90
Horizontal intercept: 75

A

6. This graph represents a 150-L hot-water tank being filled at a constant rate. Determine the rate of change of the relation.



slope is rate of change.

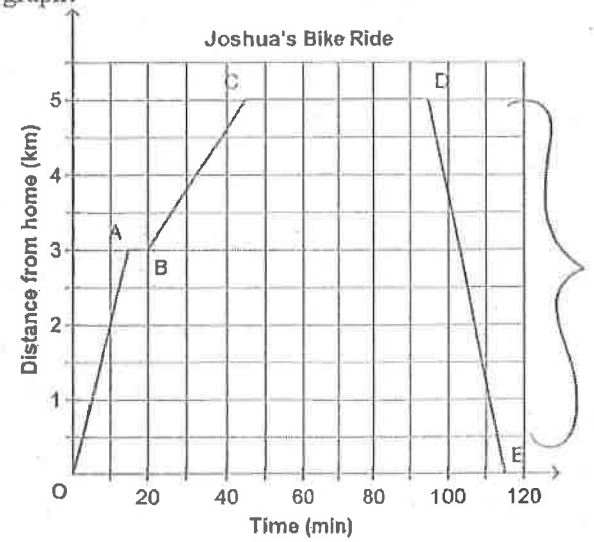
$$\text{slope} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{150 - 75}{50 - 25} = \frac{75}{25} = 3 \text{ L/min.}$$

a. 3 L/min
b. 75 L/min
c. 0.33 L/min
d. 25 L/min

3

Name: _____ ID: G

D 7. Joshua went on a bike ride. Which statement best describes what is happening for line segment DE in this graph?



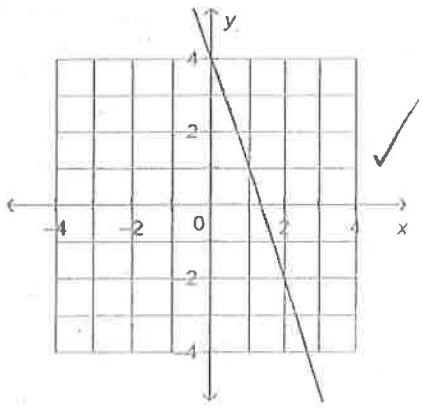
heading home

a. Joshua leaves home.
b. Joshua cycles to the park.
c. Joshua spends time at the park.
d. Joshua returns home. ✓

A 8. Which graph represents the linear function $f(x) = -3x + 4$?

y int

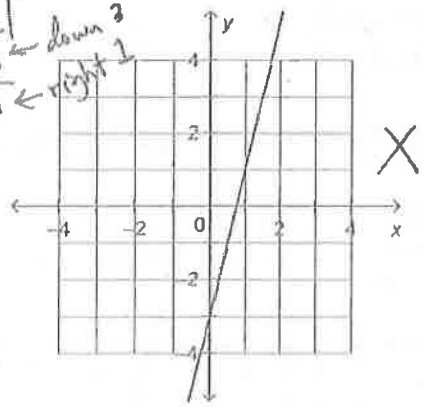
a.



✓

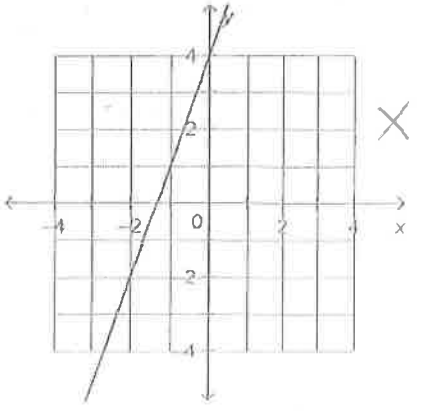
c.

slope: $-\frac{3}{1}$ ← down 3, right 1



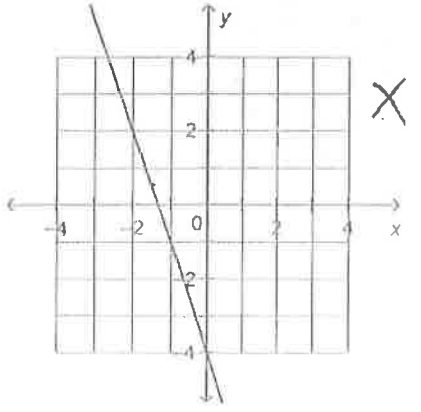
X

b.



X

d.



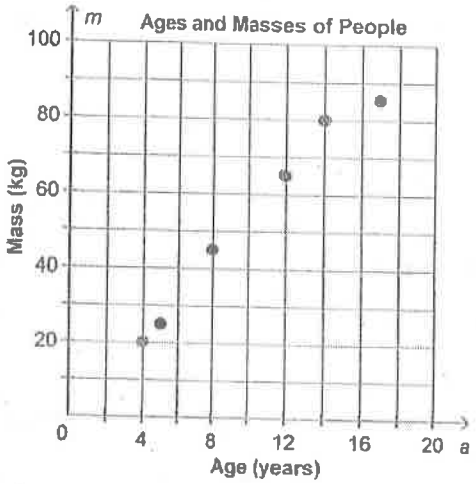
X

2

Name: _____ ID: G

B 9. This graph shows the masses of people, m, as a function of age, a. Determine the range of the graph.

y values



20, 25, 45, 65, 80, 85

a. $\{4,5,8,12,14,17\}$
b. $\{20,25,45,65,80,85\}$
c. $\{15,25,45,55,80,85\}$
d. $\{3,5,8,10,14,17\}$

C 10. Identify the domain of this relation.

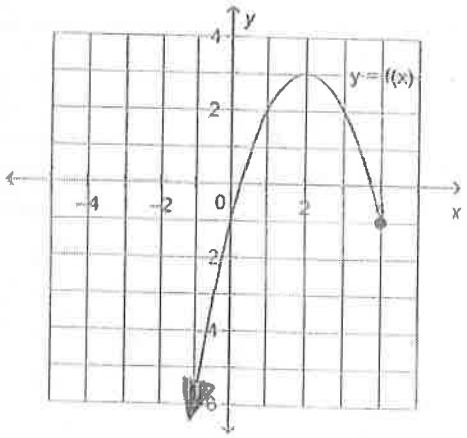
x values

$\{(10,12),(7,9),(11,-13),(8,-10)\}$

7, 8, 10, 11

a. $\{-13,-10,9,12\}$
b. $\{-10,9,11,12\}$
c. $\{7,8,10,11\}$
d. $\{7,8,11,12\}$

B 11. Determine the domain and range of the graph of this function.



D: $x \leq 4$

R: $y \leq 3$

a. $2 \leq x \leq 4;\ y \leq 3$
b. $x \leq 4;\ y \leq 3$
c. $x \leq 3;\ y \leq 4$
d. $x \leq 4;\ -1 \leq y \leq 3$

3

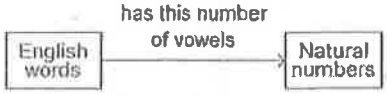
Name: _____ ID: G

D 12. For the function $g(x) = 2x - 9$, determine $g(8.9)$.

$g(8.9) = 2(8.9) - 9 = 17.8 - 9 = 8.8$

a. 8.95 b. 1.9 c. −8.8 (d.) 8.8

C 13. Which ordered pair belongs to the relation shown in the diagram below?



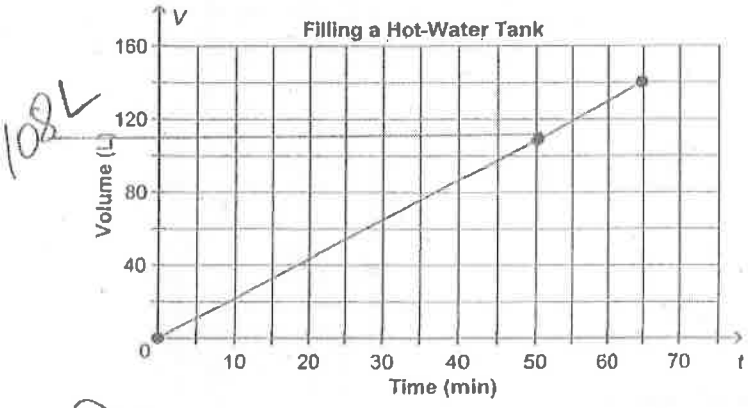
a. (mathematics, 2) ✗ ↖ 4 vowels

(c.) (relation, 4) ✓ ↖ 4 vowels

b. (arrow, 3) 2 vowels ✗

d. (function, 1) ↑ 3 vowels ✗

A 14. This graph represents the time it takes to fill a 140-L hot-water tank. Determine the volume of water in the tank after 50 min.



108 L

(a.) about 108 L

b. about 23 L

c. about 97 L

d. about 119 L

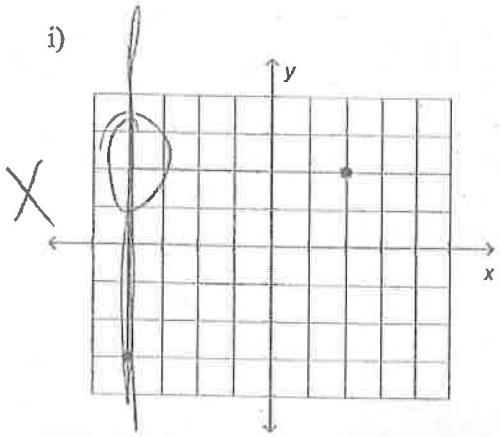
3

Name: _____ ID: G

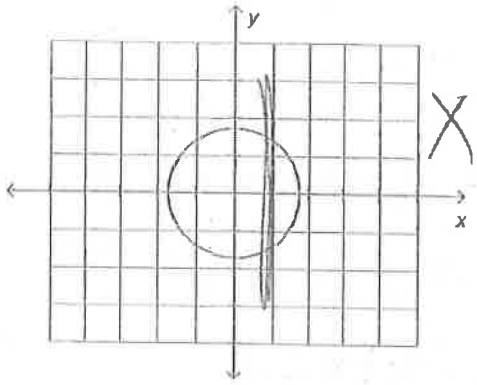
A

15. Which of these graphs represents a function?

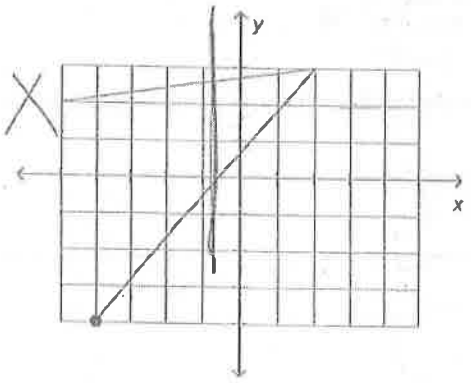
i)



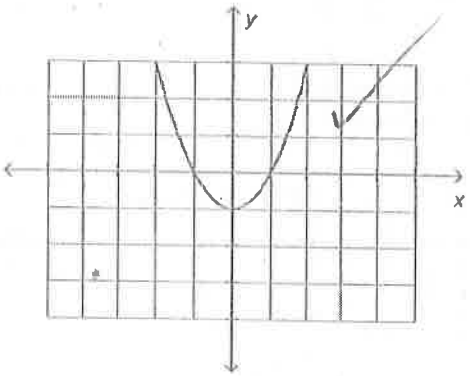
ii)



iii)



iv)



a. iv b. ii c. i d. iii

A

16. Which equation does not represent a linear relation?

i) $y = x^2 - 10$
ii) $x = -4$
iii) $y = -2x + 10$
iv) $6x + 7y = 7$

a. i b. iv c. ii d. iii

Name: _____ ID: G

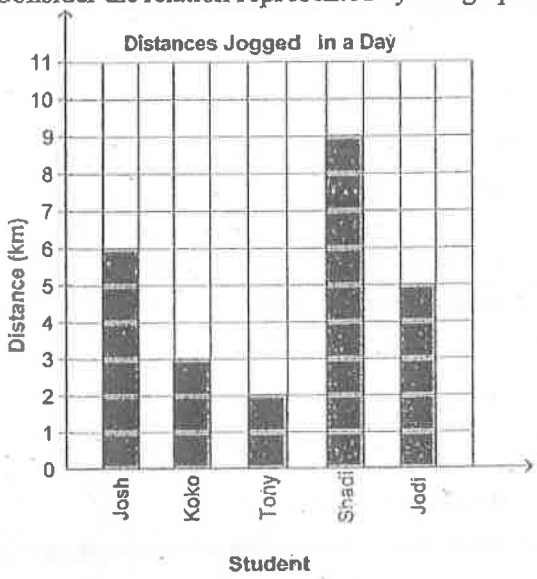
A 17. For the function $g(x) = 2x - 9$, determine x when $g(x) = -19$.

$-19 = 2x - 9$
$+9 \quad +9$

a. –5 b. –14 c. 14 d. –47

$\frac{-10}{2} = \frac{2x}{2} \quad x = -5$

D 18. Consider the relation represented by this graph. Represent the relation as a set of ordered pairs.



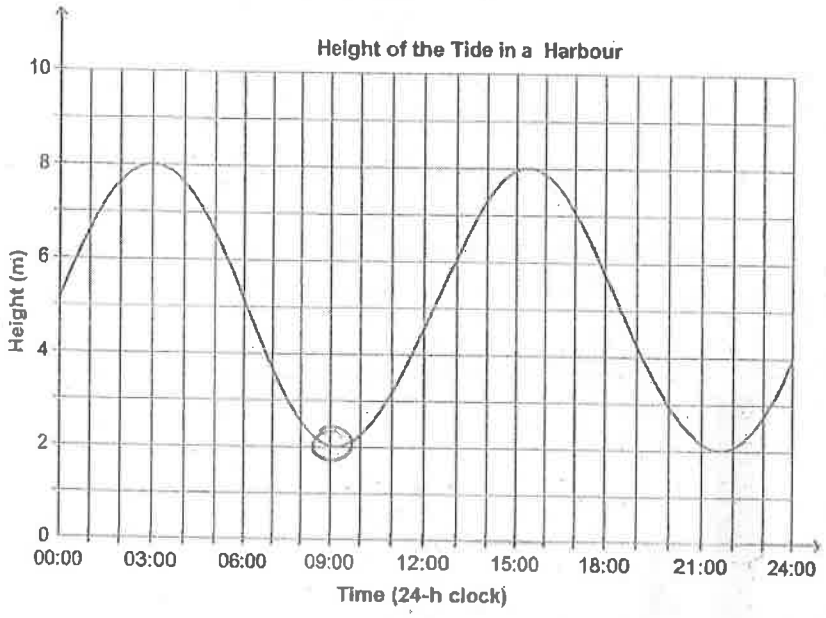
(Name, Distance)

a. {(6, Josh), (3, Koko), (Tony, 2), (9, Shadi), (Jodi, 5)} X
b. {(6, Josh), (3, Koko), (2, Tony), (9, Shadi), (5, Jodi)} X
c. {(Josh, 6), (Koko, 3), (Tony, 2), (Shadi, 5), (Jodi, 9)}
d. {(Josh, 6), (Koko, 3), (Tony, 2), (Shadi, 9), (Jodi, 5)}

/2

Name: _____ ID: G

B 19. This graph shows the height of the tide in a harbour as a function of time in one day. At about what time in the morning does the least height occur?



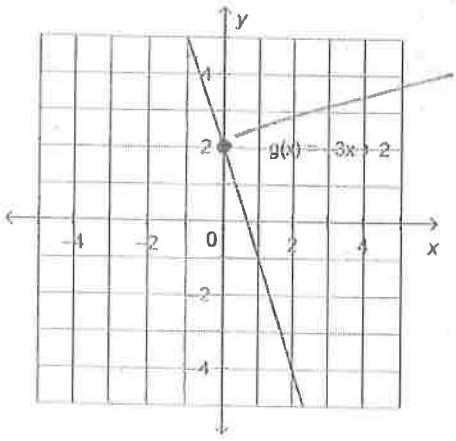
a. About 10:00 a.m.

c. About 2:00 a.m.

A b. About 9:00 a.m. ✓

d. About 3:00 a.m.

20. This is a graph of the function $g(x) = -3x + 2$. **Determine the domain value** when the range value is 2.



(0, 2)

x y

$y = -3x + 2$

$2 = -3x + 2$

$-2 \quad -2$

$\frac{0}{-3} = \frac{-3x}{-3}$ $x = 0$

a. 0

b. -4

c. -2.5

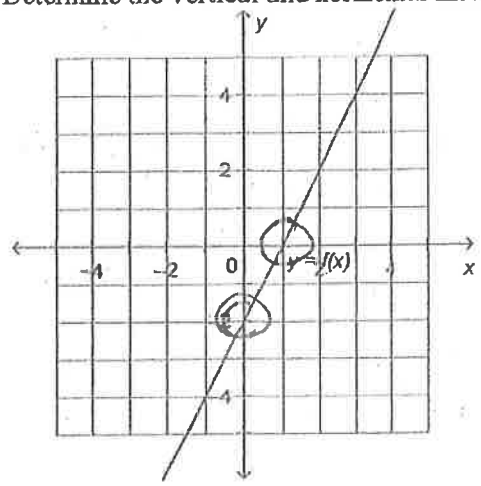
d. -1

2

Name: _____ ID: G

Written Response: SHOW ALL WORK! REMEMBER UNITS!

21. Determine the vertical and horizontal intercepts of this graph. (2 marks)



vertical intercept is -2
horizontal intercept is 1

Horizontal intercept: 1

Vertical intercept: -2

22. For the function $f(x) = 4x - 1$, determine $f(-5.5)$. (2 marks)

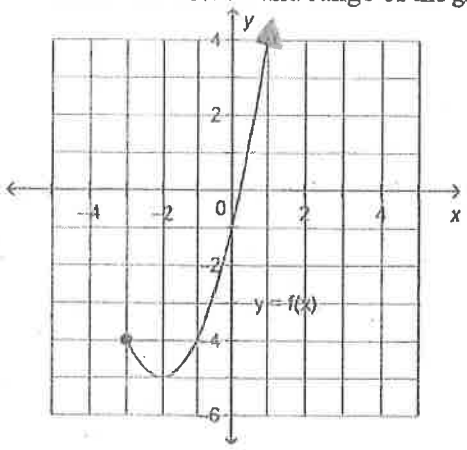
$$f(-5.5) = 4(-5.5) - 1$$
$$= -22 - 1$$
$$= -23$$

Answer: -23

4

Name: _____ ID: G

23. Determine the domain and range of the graph of this function. (2 marks)



left : -3
right : ∞

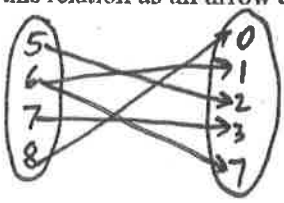
down : -5
up : ∞

Domain: $x \geq -3$

Range: $y \geq -5$

24. Consider the relation represented by this set of ordered pairs. $\{(5,2),(6,7),(7,3),(6,1),(8,0)\}$

a) Represent this relation as an arrow diagram. (1 mark)



b) Is this relation a FUNCTION (1 mark) ? (circle) YES (NO)

25. Suppose you were to graph the data in this table of values. Would you join the points? **Justify your answer.** (2 marks)

Number of Pop Bottles, *n*	Refund, *r* ($)
5	1.00
12	2.40
17	3.40
24	4.80
30	6.00

No, you cannot return a portion of a bottle.

Name: _____ ID: G

26. The equation $C = 15n + 250$ represents the total cost, C dollars, for a sports banquet when n people attend. (5 marks)

a) Write the function in **function notation**.

$C(n) = 15n + 250$

b) Determine $C(31)$. $C(31) = 15(31) + 250$

$= 465 + 250$

$= 715$

c) What does this number *(your ANSWER to question b)* represent?

The cost, in dollars ($715), of 31 people attending the banquet.

d) Determine the value of n when $C(n) = 955$

$955 = 15n + 250$

$-250 \quad -250$

$\frac{705}{15} = \frac{15n}{15}$ $n = 47$.

e) What does this value of n *(your ANSWER to question d)* represent?

If the cost of the banquet is $955, 47 people will be attending.

27. A company rents paddle boats by the day. This table shows the total cost of **renting a paddle boat for different numbers of days**. (5 marks)

Number of Days "n"	Total Cost "C" ($)
1	$79
3	$127
5	$175
7	$223

(2, 48, 48, 48)

a) State the independent variable: number of days

b) State the dependent variable: Cost

c) Does this table of values represent a linear relation? (Y) / N

Yes

d) Determine the **rate of change** of this relation.

slope $= \frac{48}{2} = \$24/\text{day}$

e) What does this rate of change represent? (give *meaning* to the rate of change)

It costs $24 per day to rent a paddle boat (plus $55 fixed fee)

10