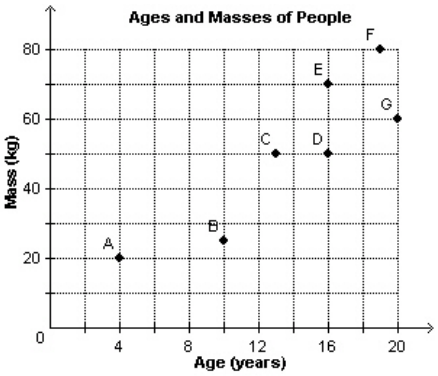
1 Each point on this graph represents a person. Which two people are the same age?



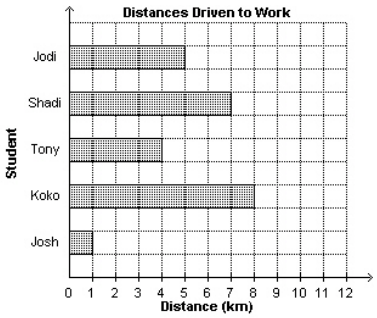
A E and F

B C and D

C D and E

D B and C

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



A {(5, Jodi), (7, Shadi), (4, Tony), (8, Koko), (1, Josh)}

B {(Jodi, 7), (Shadi, 5), (Tony, 4), (Koko, 8), (Josh, 1)}

C {(Jodi, 5), (Shadi, 7), (Tom, 4), (Koko, 8), (Steven, 1)}

D {(Jodi, 5), (Shadi, 7), (Tony, 4), (Koko, 8), (Josh, 1)}

3 Which set of ordered pairs represents a linear relation?

i) $\{(4, 9), (5, 7), (6, 5), (7, 3), (8, 1)\}$

ii) $\{(5, 8), (6, 10), (7, 12), (8, 13), (9, 14)\}$

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

iv) $\{(4, 6), (12, 5), (2, 4), (13, 3), (4, 2)\}$

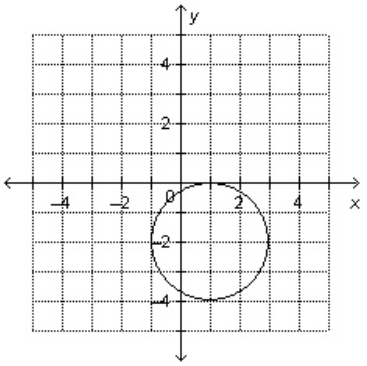
A iv

B i

C ii

D iii

4 Determine the range of the graph.



A $-1 \leq y \leq 0$

B $-4 \leq y \leq 0$

C $-1 \leq x \leq 3$

D $-4 \leq y \leq 3$

5 The relation between x and y is linear. Which number would complete this table?

x	3	7	11	15	19
y	19	13	7		–5

A –7

B 1

C –6

D 6

6 Write $y = 10x - 10$ in function notation.

A $f(x) = 10y - 10$

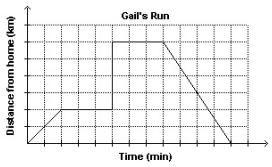
B $f(x) = 10x - 10$

C $f(y) = 10y - 10$

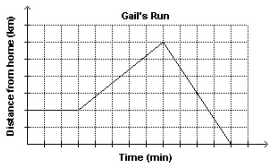
D $f(y) = 10x - 10$

7 Gail leaves the house for her morning jog. She stops for a quick drink, then continues jogging before stopping again to chat with a friend. She then jogs back home. Which graph best represents Gail's run?

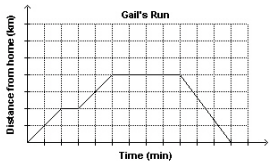
A



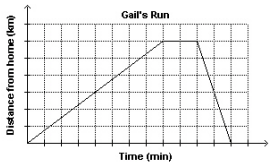
B



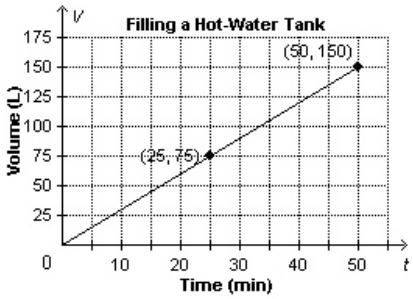
C



D



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



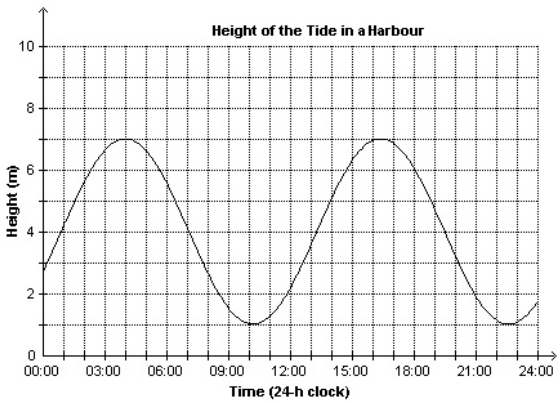
A 25 L/min

B 3 L/min

C 75 L/min

D 0.33 L/min

9 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 11:00 a.m.

B About 4:00 a.m.

C About 10:00 a.m.

D About 1:00 a.m.

10 The altitude of a plane, *a* metres, is related to the time, *t* minutes, that has elapsed since it started its ascent. Determine the rate of change of this linear relation.

***t* (min)**	0	2	4	6	8
***a* (m)**	4000	5400	6800	8200	9600

A 1500 m/min

B 1400 m/min

C 1200 m/min

D 700 m/min

11 Which set of ordered pairs does <u>not</u> represent a function?

i) $\{(2,5),(3,8),(4,11),(2,-1)\}$

ii) $\{(4,6),(5,-7),(7,9),(8,-10)\}$

iii) $\{(-3,-8),(-1,-6),(-2,5),(0,7)\}$

iv) $\{(7,0),(4,-1),(-6,5),(-8,0)\}$

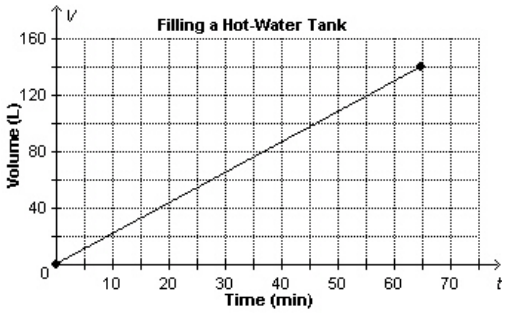
A i

B ii

C iv

D iii

12 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.



A about 23 L

B about 97 L

C about 119 L

D about 108 L

13 Which equation does <u>not</u> represent a linear relation?

i) $y = x^2 - 10$

ii) $x = -5$

iii) $y = -6x + 10$

iv) $6x + 11y = 13$

A iii

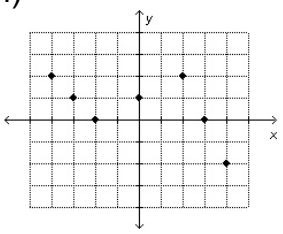
B ii

C i

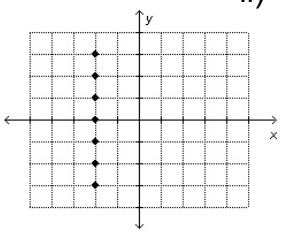
D iv

14 Which of these graphs represents a function?

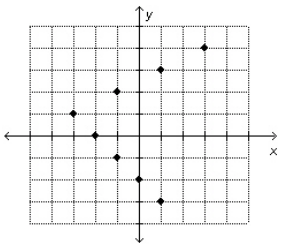
i)



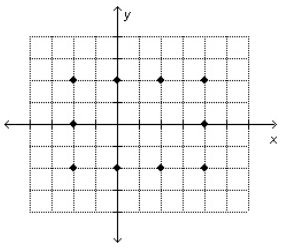
ii)



iii)



iv)



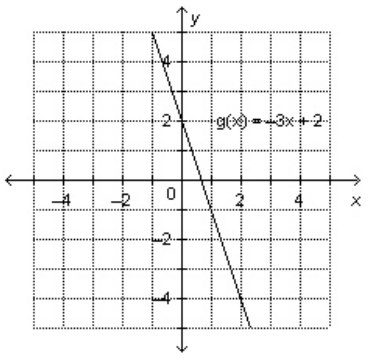
A ii

B i

C iii

D iv

15 This is a graph of the function $g(x) = -3x + 2$. Determine the domain value when the range value is –4.



A –2

B 0.5

C 11

D 2

16 Identify the independent variable and the dependent variable for this table of values.

Hours Worked, ***h***	**Gross Pay,** ***P*** **($)**
4	38.00
5	47.50
9	85.50
20	190.00
30	285.00

A independent variable: *P*
dependent variable: *h*

B independent variable: domain
dependent variable: range

C independent variable: gross pay
dependent variable: hours worked

D independent variable: hours worked
dependent variable: gross pay

17 For the function $f(x) = -3x + 8$, determine $f(-2)$.

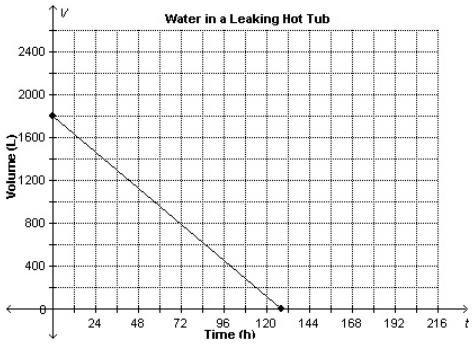
A 7

B 2

C 14

D 3

18 This graph shows the volume of water remaining in a leaking hot tub as a function of time. Determine the domain and range.



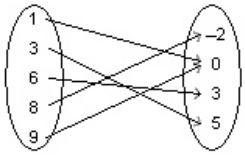
A Domain: $t \leq 129$
Range: $0 \leq V \leq 1800$

B Domain: $0 \leq V \leq 1800$
Range: $t \leq 129$

C Domain: $0 \leq t \leq 129$
Range: $V \leq 1800$

D Domain: $0 \leq t \leq 129$
Range: $0 \leq V \leq 1800$

19 Identify the range of this relation.



A $\{-2, 3, 5\}$

B $\{3, 6, 8\}$

C $\{-2, 0, 3, 5\}$

D $\{1, 3, 6, 8, 9\}$

20 For the function $g(x) = 2x - 9$, determine x when $g(x) = -15$.

A –3

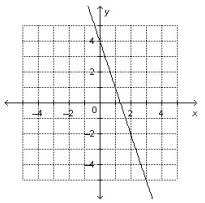
B 12

C –39

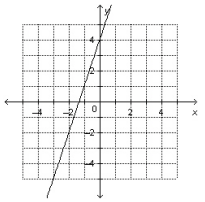
D –12

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

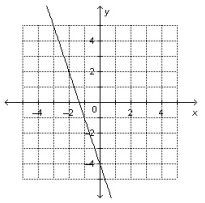
A



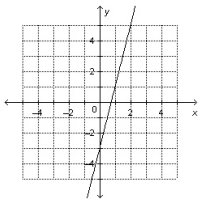
B



C



D



22 The function $C(f) = \frac{5}{9}(f - 32)$ converts a temperature, *f* degrees Fahrenheit, to *C* degrees Celsius. Determine $C(39)$ to the nearest degree.

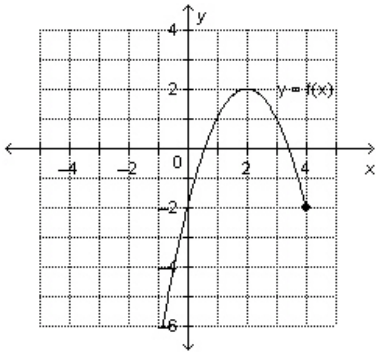
A 38°C

B 102°C

C 4°C

D –4°C

23 Determine the domain and range of the graph of this function.



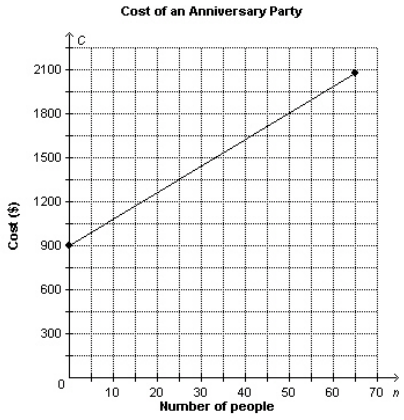
A $2 \le x \le 4;\ y \le 2$

B $x \le 4;\ y \le 2$

C $x \le 2;\ y \le 4$

D $x \le 4;\ -2 \le y \le 2$

24 The graph shows the cost of hosting an anniversary party. What is the maximum number of people who can attend the party for a cost of $1500?



A 61 people

B 38 people

C 33 people

D 27 people

ANSWERS

1. C
2. D
3. B
4. B
5. B
6. B
7. C
8. B
9. C
10. D
11. A
12. D
13. C
14. B
15. D
16. D
17. C
18. D
19. C
20. A
21. A
22. C
23. B
24. C