

# Fully-Worked Solutions

## PRACTICE 8

### Section A

- 1 Object 5 has many images. Many objects (10 and 20) have the same image.  
*Answer: D*
- 2 Object  $b$  has many images ( $q$  and  $r$ ).  
*Answer: B*
- 3  $f(x) = x^2$   
 $f(a) = a^2 = 64$   
 $a = 8$   
*Answer: A*
- 4  $b \times 4 = 28$   
 $b = 7$   
*Answer: C*
- 5 **D:** Object 2 has two images (8 and 10).  
*Answer: D*
- 6 A line parallel to  $y$ -axis cuts the graph at one point only.  
*Answer: A*
- 7 Range is the set of images.  
*Answer: A*
- 8 Domain is the set of objects.  
*Answer: B*
- 9  $x = -4, y = 3(-4)^2 - 2$   
 $= 3(16) - 2$   
 $= 48 - 2$   
 $= 46$   
*Answer: C*
- 10  $x = -2, y = (-2)^2 - 3(-2) + 5$   
 $= 4 + 6 + 5$   
 $= 15$   
*Answer: D*
- 11  $x = -3, y = 15 - (-3)^3$   
 $= 15 - (-27)$   
 $= 42$   
*Answer: D*
- 12  $(-2, m): x = -2, y = m$   
 $y = 2x^3 - 15$   
 $m = 2(-2)^3 - 15$   
 $= 2(-8) - 15$   
 $= -16 - 15$   
 $= -31$   
*Answer: A*

$$\begin{aligned}
 13 \quad (-3, p): x &= -3, y = p \\
 y &= 3x^2 - 5 \\
 p &= 3(-3)^2 - 5 \\
 &= 3(9) - 5 \\
 &= 27 - 5 \\
 &= 22
 \end{aligned}$$

*Answer: B*

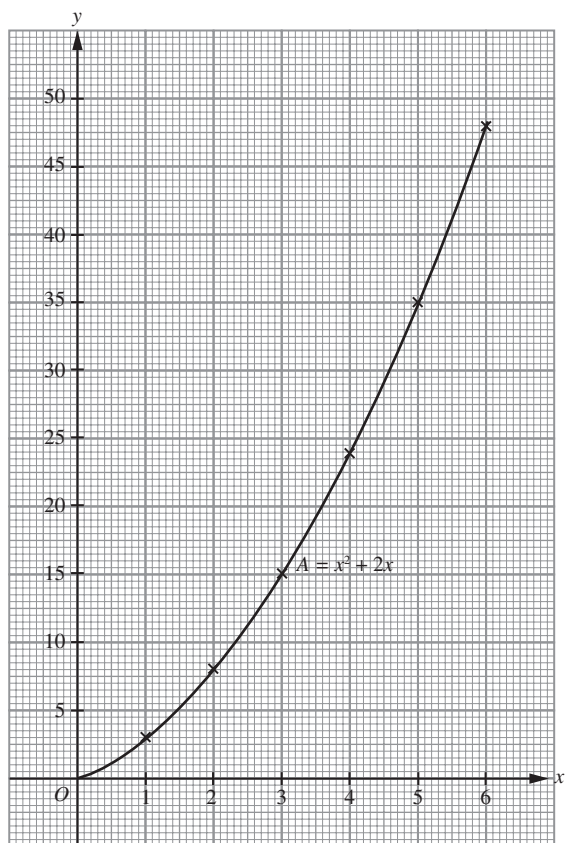
### Section B

- 1 (a) Many-to-one relation  
(b) One-to-one relation  
(c) Many-to-many relation  
(d) One-to-many relation
- 2 (a) ✓  
(b) ✗  
(c) ✓  
(d) ✓
- 3 (a) (i)  $x = 5, a = 5^2 - 3$   
 $= 25 - 3$   
 $= 22$   
(ii)  $f(x) = 61, x = b$   
 $b^2 - 3 = 61$   
 $b^2 = 64 = 8^2$   
 $b = 8$   
(b) (i) TRUE  
(ii) FALSE
- 4 (a) (i)  $A = \pi r^2$   
(ii) (a)  $A$   
(b)  $r$   
(b) Circumference of circle  
 $= 2 \times \frac{22}{7} \times 7$   
 $= 44 \text{ cm}$

### Section C

- 1 (a) (i)  $\{-9, -6, 6, 9\}$   
(ii)  $\{36, 81\}$   
(iii)  $\{(-9, 81), (-6, 36), (6, 36), (9, 81)\}$   
(iv) Many-to-one relation  
(b) (i)  $x = 4, A = 4^2 + 2(4)$   
 $= 16 + 8$   
 $= 24$

(ii)



(c)  $(6, m)$ :  $x = 6, y = m$   
 $y = 3x - x^2 + 4$   
 $m = 3(6) - (6)^2 + 4$   
 $= 18 - 36 + 4$   
 $= -14$

2 (a) (i) Year 2019

(ii) Interest received in the year 2020

$$= \text{RM}12\,000 \times \frac{10}{100}$$

$$= \text{RM}1\,200$$

(iii) Total savings

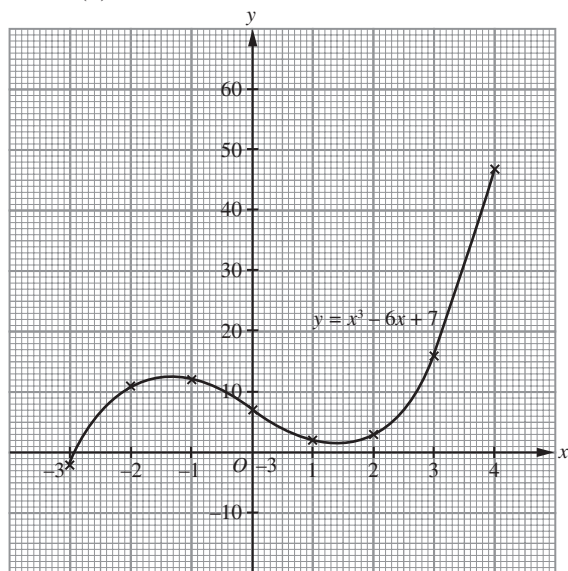
$$= \text{RM}6\,000 + \frac{10}{100} \times \text{RM}6\,000$$

$$= \text{RM}6\,000 + \text{RM}600$$

$$= \text{RM}6\,600$$

(b) (i)  $x = 3, y = x^3 - 6x + 7$   
 $= 3^3 - 6(3) + 7$   
 $= 27 - 18 + 7$   
 $= 16$

(ii)



(c) (i) Not a function

(ii) Object 16 has two images (4 and -4).  
 Object 49 has two images (7 and -7).