

1. Functions

Kertas 1

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2005

- 1 In Diagram 1, the function h maps x to y and the function g maps y to z .
 Dalam Rajah 1, fungsi h memetakan x kepada y dan fungsi g memetakan y kepada z .

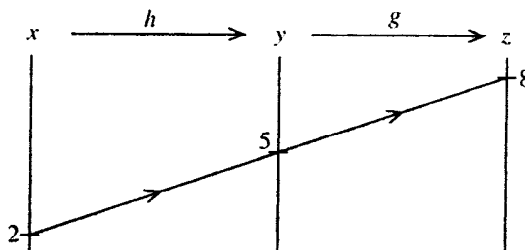


Diagram 1
Rajah 1

Determine

Tentukan

- (a) $h^{-1}(5)$.
 (b) $gh(2)$.

[2 marks]

[2 markah]

- 2 The function w is defined as $w(x) = \frac{5}{2-x}$, $x \neq 2$.

Fungsi w ditakrifkan oleh $w(x) = \frac{5}{2-x}$, $x \neq 2$.

Find

Carikan

- (a) $w^{-1}(x)$.
 (b) $w^{-1}(4)$.

[3 marks]

[3 markah]

- 3 The following information refers to the functions h and g .
 Maklumat berikut adalah berkaitan dengan fungsi h dan fungsi g .

$h : x \rightarrow 2x - 3$ $g : x \rightarrow 4x - 1$

Find $gh^{-1}(x)$.Carikan $gh^{-1}(x)$.

[3 marks]

[3 markah]

Kertas 1

- 1 In Diagram 1, set B shows the images of certain elements of set A .
 Dalam Rajah 1, set B menunjukkan imej bagi unsur-unsur tertentu set A .

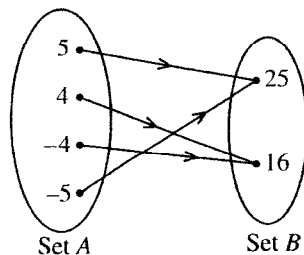


Diagram 1
Rajah 1

- (a) State the type of relation between set A and set B .
 Nyatakan jenis hubungan antara set A dengan set B .
 (b) Using the function notation, write a relation between set A and set B .
 Dengan menggunakan tata tanda fungsi, tulis satu hubungan antara set A dengan set B .
 [2 marks]

- 2 Diagram 2 shows the function $h : x \rightarrow \frac{m-x}{x}$, $x \neq 0$, where m is constant.
 Rajah 2 menunjukkan fungsi $h : x \rightarrow \frac{m-x}{x}$, $x \neq 0$, dengan keadaan m ialah pemalar.

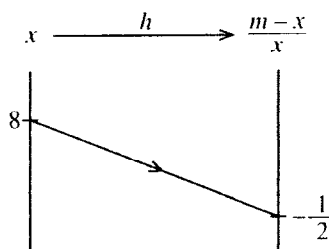


Diagram 2
Rajah 2

Find the value of m .
 Cari nilai m .

[2 marks]
 [2 markah]

Kertas 2

- 2 Given that $f : x \rightarrow 3x - 2$ and $g : x \rightarrow \frac{x}{5} + 1$, find
 Diberi $f : x \rightarrow 3x - 2$ dan $g : x \rightarrow \frac{x}{5} + 1$, cari

(a) $f^{-1}(x)$.

[1 mark]
 [1 markah]

(b) $f^{-1}g(x)$.

[2 marks]
 [2 markah]

(c) $h(x)$ such that $hg(x) = 2x + 6$.
 $h(x)$ dengan keadaan $hg(x) = 2x + 6$.

[3 marks]
 [3 markah]

Kertas 1

- 1 Diagram 1 shows the linear function h .
Rajah 1 menunjukkan fungsi linear h .

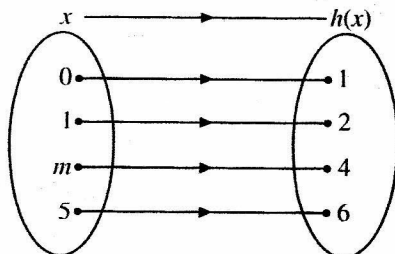


Diagram 1
Rajah 1

- (a) State the value of m .
Nyatakan nilai m .
- (b) Using the function notation, express h in terms of x .
Menggunakan tata tanda fungsi, ungkapkan h dalam sebutan x .

[2 marks]
 [2 markah]

- 2 Given the function $f: x \rightarrow |x - 3|$, find the values of x such that $f(x) = 5$. [2 marks]
Diberi fungsi $f: x \rightarrow |x - 3|$, cari nilai-nilai x dengan keadaan $f(x) = 5$. [2 markah]

- 3 The following information is about the function h and the composite function h^2 .
Maklumat berikut adalah berkaitan dengan fungsi h dan fungsi gubahan h^2 .

$$\begin{aligned} h &: x \rightarrow ax + b, \text{ where } a \text{ and } b \text{ are constants, and } a > 0 \\ h &: x \rightarrow ax + b, \text{ dengan keadaan } a \text{ dan } b \text{ ialah pemalar, dan } a > 0 \\ h^2 &: x \rightarrow 36x - 35 \end{aligned}$$

Find the value of a and of b .
Cari nilai a dan nilai b .

[3 marks]

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Kertas 1

- 1 Diagram 1 shows the graph of the function $f(x) = |2x - 1|$, for the domain $0 \leq x \leq 5$.

Rajah 1 menunjukkan graf bagi fungsi $f(x) = |2x - 1|$, untuk domain $0 \leq x \leq 5$.

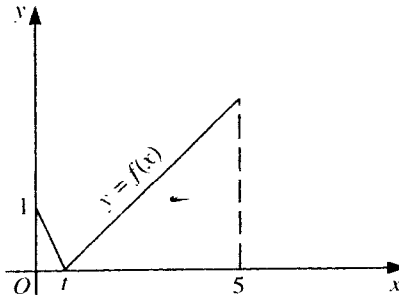


Diagram 1
Rajah 1

State
Nyatakan

- (a) the value of t .
nilai t .
- (b) the range of $f(x)$ corresponding to the given domain.
julat $f(x)$ berdasarkan domain yang diberi.

[3 marks]

- 2 Given the functions $g : x \rightarrow 5x + 2$ and $h : x \rightarrow x^2 - 4x + 3$, find
Diberi fungsi $g : x \rightarrow 5x + 2$ dan $h : x \rightarrow x^2 - 4x + 3$, cari

- (a) $g^{-1}(6)$.
- (b) $hg(x)$.

[4 marks]

- 3 Given the functions $f(x) = x - 1$ and $g(x) = kx + 2$, find
Diberi fungsi $f(x) = x - 1$ dan $g(x) = kx + 2$, cari

- (a) $f(5)$.
- (b) the value of k such that $gf(5) = 14$.
nilai k dengan keaduan $gf(5) = 14$.

[3 marks]

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2009

Kertas 1

- 1 Diagram 1 shows the relation between set X and set Y in the graph form.

Rajah 1 menunjukkan hubungan antara set X dan set Y dalam bentuk graf.

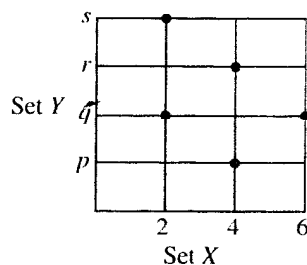


Diagram 1
Rajah 1

State

Nyatakan

- (a) the objects of q .
objek-objek bagi q .
- (b) the codomain of the relation.
kodomain hubungan itu.

[2 marks]

- 2 Given the functions $g : x \rightarrow 2x - 3$ and $h : x \rightarrow 4x$, find
Diberi fungsi $g : x \rightarrow 2x - 3$ dan $h : x \rightarrow 4x$, cari

- (a) $hg(x)$.
- (b) the value of x if $hg(x) = \frac{1}{2}g(x)$.

nilai x jika $hg(x) = \frac{1}{2}g(x)$.

[4 marks]

- 3 Given the function $g : x \rightarrow 3x - 1$, find
Diberi fungsi $g : x \rightarrow 3x - 1$, cari

- (a) $g(2)$.
- (b) the value of p when $g^{-1}(p) = 11$.
nilai p apabila $g^{-1}(p) = 11$.

[3 marks]

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- 1 Diagram 1 shows the relation between set X and set Y in the graph form.
Rajah 1 menunjukkan hubungan antara set X dan set Y dalam bentuk graf.

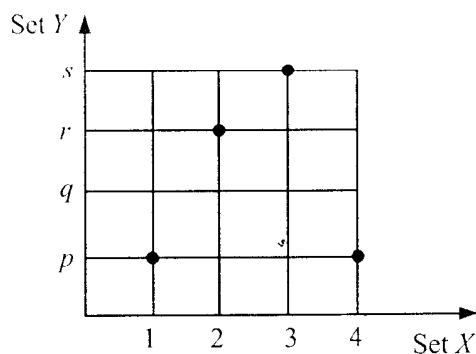


Diagram 1
Rajah 1

State

Nyatakan

- (a) the relation in the form of ordered pairs,
hubungan itu dalam bentuk pasangan tertib,
- (b) the type of the relation,
jenis hubungan itu,
- (c) the range of the relation.
julat hubungan itu.

[3 marks]

- 2 Given the functions $g : x \rightarrow 2x + 1$ and $h : x \rightarrow 3x + 6$, find
Diberi fungsi $g : x \rightarrow 2x + 1$ dan $h : x \rightarrow 3x + 6$, cari

- (a) $g^{-1}(x)$,
- (b) $hg^{-1}(9)$.

[3 marks]

- 3 Given the functions $g : x \rightarrow x - 8$ and $h : x \rightarrow \frac{x}{3x-2}, x \neq \frac{2}{3}$, find the value of $hg(10)$.

[3 marks]

Diberi fungsi $g : x \rightarrow x - 8$ dan $h : x \rightarrow \frac{x}{3x-2}, x \neq \frac{2}{3}$, cari nilai $hg(10)$.

[3 markah]

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