2.4 Homework

These questions are harder.
If you get stuck on one, miss it out and come back to it later.

Marks Available : 32

Question 1

If $f(x) = 8x + 5, \quad x \in \mathbb{R}, \quad$ find;

(**i**) $f(4)$ (**ii**) $f(-11)$ (**iii**) $f(0.25)$

[3 marks]

Question 2

If $g(x) = 13 - x, \quad x \in \mathbb{R}, \quad$ find;

(**i**) $g(7)$ (**ii**) $g(25)$ (**iii**) $g(-5)$

[3 marks]

Question 3

If $h(x) = \sqrt{25 - x^2}, \quad x \in \mathbb{R}, \quad -5 \leqslant x \leqslant 5, \quad$ find,

(**i**) $h(4)$ (**ii**) $h(0)$ (**iii**) $h(-5)$

[3 marks]

(**iv**)   Try to find $h(7)$
          Hence explain the restriction on the domain that $-5 \leqslant x \leqslant 5$

[1 mark]

Question 4

If $k(x) = 8x^2 + 6x + 13, \quad x \in \mathbb{R}, \quad$ find,

(**i**) $k(5)$ (**ii**) $k(-1)$ (**iii**) $k(0.5)$

[3 marks]

Question 5

If $m(x) = x^3 + x^2, \quad x \in \mathbb{R}, \quad$ find,

(**i**) $m(3)$ (**ii**) $m(-1)$ (**iii**) $m(0.5)$

[3 marks]

Question 6

If $n(x) = \dfrac{12}{x}, \quad x \in \mathbb{R}, \quad x \neq 0, \quad$ find,

(**i**) $n(6)$ (**ii**) $n(0.25)$ (**iii**) $n(36)$

[3 marks]

(**iv**)   Try to find $n(0)$ and hence explain the restriction on the domain that $x \neq 0$

[1 mark]

Question 7

If $f(x) = 3x^2, \quad x \in \mathbb{R}, \quad$ find,

(**i**) $f(11)$ (**ii**) $f(w+1)$ (**iii**) $f(2x)$

Write your answers without any brackets.

[3 marks]

Question 8

If $f(x) = x^3 + x, \quad x \in \mathbb{R}, \quad$ find,

(i) $f(4)$ **(ii)** $f(3w)$ **(iii)** $f\left(x^2\right)$

Write your answers without any brackets.

[3 marks]

Question 9

If $f(x) = x^2 + 1, \quad x \in \mathbb{R}, \quad$ find,

(i) $f(14)$ **(ii)** $f(w+4)$ **(iii)** $f\left(3\sqrt{x}\right)$

Write your answers without any brackets.

[3 marks]

Question 10

If $f(x) = x^3, \quad x \in \mathbb{R}, \quad$ find $f(2x+1)$

Express your answer without using any brackets.

[3 marks]