INTRODUCTION TO FUNCTIONS

Task 1 – Substitute the given values of x into the following functions.

1) $f(x) = x + 3$, find $f(2)$

2) $f(x) = 2x$, find $f(5)$

3) $f(x) = x^2$, find $f(4)$

4) $f(x) = x^2 + 1$, find $f(3)$

5) $f(x) = 3x - 2$, find $f(6)$

6) $f(x) = x^2 - x$, find $f(5)$

7) $f(x) = 2x^2$, find $f(3)$

8) $f(x) = x^2 + 2x$, find $f(4)$

9) $f(x) = 3x^2 - 1$, find $f(2)$

10) $f(x) = x^2 + x - 2$, find $f(5)$

11) $f(x) = \frac{2x^2+1}{4}$, find $f(3)$

12) $f(x) = \frac{1-x^3}{x}$, find $f(-1)$

Task 2

13) Given that $f(x) = x + 4$, solve $f(x) = 9$.

14) Given that $f(x) = 2x$, solve $f(x) = 14$.

15) Given that $f(x) = x^2 + 1$, solve $f(x) = 10$.

16) Given that $f(x) = 3x - 1$, solve $f(x) = 11$.

17) Given that $f(x) = x^2 - 4$, solve $f(x) = 5$.

18) Given that $f(x) = 2x^2$, solve $f(x) = 32$.

19) Given that $f(x) = x^2 + 2x$, solve $f(x) = 15$.

20) Given that $f(x) = x^2 - x$, solve $f(x) = 6$.

21) Given that $f(x) = x^2 + x - 2$, solve $f(x) = 10$.

22) Given that
$f(x) = 2x + 8$ and $g(x) = -x - 7$
Solve $f(x) = g(x)$

23) Given that
$f(x) = \frac{x}{5} + 3$ and $g(x) = 9 - x$
Solve $f(x) = g(x)$

24) Given that
$f(x) = x^2 + 22$ and $g(x) = -7x$
Solve $f(x) + g(x) = 12$

Task 3 – For each of the following, state the type of function.

25) $f(x) = 2x + 1$

26) $f(x) = x^3 + 2x^2 - x + 1$

27) $f(x) = x^2 + 4x + 5$

28) $f(x) = (x + 2)(x - 1)(x + 3)$

29) $f(x) = \frac{4}{x}$

30) $f(x) = 5 - 4x$

31) $f(x) = -x^2 + 3x - 9$

Task 4

32) What is the domain of a function?

33) What is the range of a function?

Task 5 – State a value of x (or range of values) that cannot be included in the domain of the following functions.

34) $f(x) = \frac{1}{x}$

35) $f(x) = \frac{1}{x-3}$

36) $f(x) = \frac{2}{x-1}$

37) $f(x) = \frac{1}{x^2}$

38) $f(x) = \frac{5}{x^2-9}$

39) $f(x) = \frac{1}{x(x-2)}$

40) $f(x) = \frac{1}{(x-1)(x+2)}$

41) $f(x) = \sqrt{x}$

42) $f(x) = \sqrt{x+5}$

43) $f(x) = 2 - \sqrt{4-x}$