Function notation

Linear functions

$f(x) = ax + b$ <u>OR</u> $f : x \rightarrow ax + b$ OR $y = ax + b$

Working with functions

1) When the value is in the bracket replace the x value in the function with the value in the bracket

Eg. $f(x) = 3x + 2$

$f(3) = 3(3) + 2$

$ = 9 + 2$

$ = 11$

$f(3) = 11$

When $x = 3$ $y = 11$

Couple (point) $(\overset{x}{3}, \overset{y}{11})$

2) When the function is equal to a value you must put the function equal to the value and solve for x.

Eg $f(x) = 3x + 2$

$f(x) = 8$ Find x

$3x + 2 = 8$

$\left.\begin{array}{c} -2 \\ \div 3 \end{array}\right| \begin{array}{c} 3x = 6 \\ x = 2 \end{array} \left|\begin{array}{c} -2 \\ \div 3 \end{array}\right.$

$f(2) = 8$

$(2, 8)$ as a couple.

$x = 2$ $y = 8$

Pg 460 Q1

$f(x) = 2x - 3$

i) $f(1) = 2(1) - 3$

$ = -1$

$f(1) = -1$

ii) $f(0) = 2(0) - 3$

$ = -3$

$f(0) = -3$

iii) $f(2) = 2(2) - 3$

$ 4 - 3$

$ = 1$

$f(2) = 1$

iv) $f(-1) = 2(-1) - 3$

$ -2 - 3$

$f(-1) = -5$

v) $f(-3) = 2(-3) - 3$

$ -6 - 3$

$f(-3) = -9$

Q2 ==$f(x) = x^2 - 3$==

$f(0) = (0)^2 - 3$

$f(1) = (1)^2 - 3$

$ 1 - 3$

$f(1) = -2$

$f(2) = (2)^2 - 3$

$ 4 - 3$

$f(2) = 1$

$f(-2) = (-2)^2 - 3$

$ 4 - 3$

$f(-2) = 1$

$f(0) = (0)^2 - 3$

$f(0) = -3$

$f(1) = -2$ $\dfrac{1-3}{}$

$f(2) = 1$ $\dfrac{}{4-3}$

$f(-2) = 1$ $\dfrac{}{4-3}$

$f(-4) = (-4)^2 - 3$ $-4x - 4 = +16$

      $16 - 3$

$f(-4) = 13$

3) $f(x) = $ 5x - 2

    $f(x) = 8$ $f(x) = 3$ $f(u) = -12$

    $5x - 2 = 8$ $5x - 2 = 3$ $5k - 2 = -12$

$\begin{array}{c|c|c} +2 \\ \div 5 \end{array} \begin{array}{c} 5x = 10 \\ x = 2 \end{array} \begin{array}{|c} +2 \\ \div 5 \end{array}$ $\begin{array}{c|c} +2 \\ \div 5 \end{array} \begin{array}{c} 5x = 5 \\ x = 1 \end{array} \begin{array}{|c} +2 \\ \div 5 \end{array}$ $\begin{array}{c|c} +2 \\ \div 5 \end{array} \begin{array}{c} 5k = -10 \\ k = -2 \end{array} \begin{array}{|c} +2 \\ \div 5 \end{array}$

    $f(2) = 8$

HIW   Q4   Pg 460