Outcome 2 – Working backwards

Bronze example

Examples... Sub in or set equal???

A function is given as

$h(t) = 4t + 1$

For what value of t is :

$h(t) = 17$? **Set EQUAL to 17!**

$4t + 1 = 17$

$4t = 16$ Subtract 1!

$t = 4$ Divide by 4!

Silver example

Examples... Sub in or set equal???

A function is given as

$h(x) = x^2 + 8x - 3$

For what value of x is : **Set them equal!**

$h(x) = x^2 - x + 33$?

$x^2 + 8x - 3 = x^2 - x + 33$

$-x^2 \quad -x^2$

$8x - 3 = -x + 33$

$+x \quad +3 \quad +x \quad +3$

$9x = 36 \quad x = 4$

Gold example

Examples... **Set them equal!**

A function is given as

$h(x) = 2x^2 + 5x - 3$

For what value(s) of x is : **Set it equal to zero!**

$h(x) = x^2 + 2x + 1$?

$2x^2 + 5x - 3 = x^2 + 2x + 1$

$-x^2 \quad -2x \quad -1 \quad -x^2 \quad -2x \quad -1$

$x^2 + 3x - 4 = 0$ **Factorise**

$(x + 4)(x - 1) = 0$

$x = -4$ or $x = 1$ **Solve**

Bronze Questions

A function is given as $f(x) = 6x + 7$.

For what value of x is :

1 $f(x) = 37$ 2 $f(x) = -5$ 3 $f(x) = 10$

A function is given as $g(a) = 3a - 11$.

For what value of a is :

4 $g(a) = -8$ 5 $g(a) = 1$ 6 $g(a) = -10$

A function is given as $h(t) = 4t - 5$.

For what value of t is :

7 $h(t) = 19$ 8 $h(t) = -17$ 9 $h(t) = -4$

Silver Questions

A function is given as $f(x) = x^2 + 7x - 4$.

For what value of x is :

1 $f(x) = x^2 + 10$ 2 $f(x) = x^2 - 3x + 46$

A function is given as $g(a) = a^2 + 3a + 5$.

For what value of a is :

3 $g(a) = a^2 + 23$ 4 $g(a) = a^2 + a + 19$

A function is given as $h(t) = t^2 - 4t + 5$.

For what value of t is :

5 $h(t) = t^2 + 29$ 6 $h(t) = t^2 - 8t + 6$

Gold Questions

A function is given as $f(x) = 2x^2 - 2x + 3$.

For what value of x is :

1 $f(x) = x^2 + 5x - 7$

A function is given as $g(a) = 3a^2 + 4a - 9$.

For what value of a is :

2 $g(a) = 2a^2 + 3a - 7$

A function is given as $h(t) = 7t^2 + 5t + 20$.

For what value of t is :

3 $h(t) = 6t^2 - 6t - 10$

Bronze Answers

1. $x = 5$ 2. $x = -2$ 3. $x = 1/2$

4. $a = 1$ 5. $a = 4$ 6. $a = 1/3$

7. $t = 6$ 8. $t = -3$ 9. $t = 1/4$

Silver Answers

1. $x = 2$ 2. $x = 5$ 3. $a = 6$

4. $a = 7$ 5. $t = -6$ 6. $t = 1/4$

Gold Answers

1. $x = 5$ or $x = 2$
2. $a = 1$ or $a = -2$
3. $t = -6$ or $t = -5$