QT Substitution

Non Calculator

1. Work out the value of $2x + 2y$ when $x = 6$ and $y = 7$ (2 marks)

$2(6) + 2(7)$ $= 26$
$12 + 14$

2. Work out the value of $7a - 6b$ when $a = 8$ and $b = 5$ (2 marks)

$7(8) - 6(5)$ $= 26$
$56 - 30$

3. $p = 12r - 8$
Find the value of p when $r = 3$ (2 marks)

$p = 12(3) - 8$ $= 28$
$= 36 - 8$

4. $s = 0.5t + 4$
Find the value of s when $t = 0.5$ (2 marks)

$s = 0.5(0.5) + 4$ $= 4.25$
$= 0.25 + 4$

5. $a = 5$
 $b = 8$
Work out the value of $5a - 2b$ (2 marks)

$5(5) - 2(8)$ $= 9$
$25 - 16$

6. $c = 6$
 $d = -2$
Work out the value of $4c + 2d$ (2 marks)

$4(6) + 2(-2)$ $= 20$
$24 - 4$

7. $e = 8$
 $f = -4$
Work out the value of $10e + 3f$ (2 marks)

$10(8) + 3(-4)$ $= 68$
$80 - 12$

QT Substitution

8. $g = -6$
   $h = -3$
Work out the value of $12g + 3h$ (2 marks)

$12(-6) + 3(-3) = -81$
$-72 -9$

9. $j = -4$
   $k = -10$
Work out the value of $8j - 4k$ (2 marks)

$8(-4) - 4(-10) = 8$
$-32 + 40$

10. $L = 7m - 4n$

    $m = 15$
    $n = -3$
Work out the value of L (2 marks)

$L = 7(15) - 4(-3)$
$= 105 + 12$
$= 117$.

11. $P = 12q + 3r$

    $q = 10$
    $r = -10$
Work out the value of P (2 marks)

$P = 12(10) + 3(-10)$
$= 120 - 30$
$= 90$

12. $S = t(u - 4)$

    $t = 7$
    $u = 4$
Work out the value of S (2 marks)

$S = 7(4 - 4)$
$S = 7(0)$
$S = 0$

QT Substitution

13. $V = w(5 - x)$

$N = 6(5 - (-2))$
$= 6(7)$
$= 42$.

$w = 6$
$x = -2$
Work out the value of V (2 marks)

14. $X = 20yz$

$X = 20(3)(2)$
$= 20(6)$
$= 120$

$y = 3$
$z = 2$
Work out the value of X (2 marks)

15. $a = 6$
$b = -4$
$c = 2$

$(-4)^2 - 4(6)(2)$
$16 \quad - 48$
-32

Work out the value of $b^2 - 4ac$ (2 marks)

16. $a = 5$
$b = 8$
$h = 4$

$\frac{1}{2}(5+8)4$
$\frac{1}{2}(13)4$

Work out the value of $A = \frac{1}{2}(a + b)h$ (2 marks)

$\frac{1}{2}(52) = 26$

$\frac{1}{2}(13)4$
$6.5 \times 4 = 26$

17. $y = mx + c$

$y = -3(8) + (-4)$
$= -24 - 4$

$m = -3$
$x = 8$
$c = -4$
Work out the value of y (2 marks)

$= -28$.

QT Substitution

Non Calculator

18. The cost of hiring a campervan is given by the formula $C = 150 + 25d$ where d is the number days the campervan is hired

(a) Find the cost of hiring the campervan for 4 days.
(b) Work out the number of days the campervan was hired if the total bill was £325

(4 marks)

(a) $C = 150 + 25(4)$

$= 250$

Cost $= £250$

$325 = 150 + 25d$

$175 = 25d$

$7 = d$

-150
$÷ 25$

7 days.

19. $s = ut + \frac{1}{2}at^2$

$u = 3$
$t = 6$
$a = 4$

Work out the value of s (2 marks)

$S = (3)(6) + \frac{1}{2}(4)(6)^2$

$= 18 + \frac{1}{2}(4)(36)$

$= 18 + 2(36)$

$S = 90$

BIDMAS

20. $s = ut + \frac{1}{2}at^2$

$u = -5$
$t = 6$
$a = 8$

Work out the value of s (2 marks)

$S = (-5)(6) + \frac{1}{2}(8)(6)^2$

$= -30 + \frac{1}{2}(8)(36)$

$= -30 + 4(36)$

$= -30 + 144$

$S = 114$.

Total   / 42 marks