

## ANSWERS - Substituting into Formula – W/C 29<sup>th</sup> June 2020

**Task 2: Complete the worksheet below.** For each question, write the formula in your book and then rewrite it substituting in the values given for each letter, then finally find its value (Don't forget to use BODMAS, where appropriate)

1. **Substitute** the given values of  $x$  into the **formulae** to find values for  $y$ :

- a)  $y = x + 4$ , when  $x = 3$   $y = 7$   
 b)  $y = 3x$ , when  $x = 1$   $y = 3$   
 c)  $y = 50 - 4x$ , when  $x = 5$   $y = 30$   
 d)  $y = 10x - 10$ , when  $x = 6$   $y = 50$   
 e)  $y = 3(x + 1)$ , when  $x = 4$   $y = 3 \times (4 + 1) = 3 \times 5 = 15$   
 f)  $y = 2(20 - x)$ , when  $x = 10$   $y = 2 \times (20 - 10) = 20$   
 g)  $y = 6(x + 2) - 8$ , when  $x = 2$   $y = 6 \times (2 + 2) - 8 = 6 \times 4 - 8 = 24 - 8 = 16$   
 h)  $y = x^2$ , when  $x = 7$   $y = 49$  (remember  $7^2$  means  $7 \times 7$ )  
 i)  $y = \frac{6x}{5}$ , when  $x = 10$   $y = 12$   
 j)  $y = \frac{x+4}{2}$ , when  $x = 8$   $y = 6$

2. **Find** the value of  $x$ , when  $a = 3$  and  $b = 6$

a) $x = 2a$	a) $x = 6$
b) $x = \frac{b}{3}$	b) $x = 2$
c) $x = ab$	c) $x = 18$
d) $x = a^2$	d) $x = 9$
e) $x = b^2 + 4$	e) $x = 40$
f) $x = \frac{a+2}{5}$	f) $x = 1$
g) $x = 2b + 4a$	g) $x = 24$
h) $x = b - a$	h) $x = 3$
i) $x = \frac{b}{a}$	i) $x = 2$
j) $x = \frac{4a+b}{2}$	j) $x = 9$

3. The speed of a car can be worked out using the **formula**:

$S = \frac{D}{T}$ , where  $S$  means speed in kilometres per hour,  $D$  means distance in kilometres and  $T$  means time in hours.

Find the **speed** of the car when:

- a)  $D=12$  and  $T=3$   $S = 4$   
 b)  $D=70$  and  $T=2$   $S = 35$   
 c)  $D=20$  and  $T=0.5$   $S = 40$   
 d)  $D=80$  and  $T=2.5$   $S = 32$



4. A **pattern** has the following formula :  $T = 3n + 1$ , where  $n$  is the term number and  $T$  is the term. **Copy** and **complete** the following table for the pattern:

n	1	2	3	4	5
T	4	7	10	13	16

5. The cost of staying in a hotel is given by the formula  $C = 50d + 20$ , where  $C$  is the cost in £ and  $d$  is the number of days a person stays. Find the cost of staying for:

- a) 3 days  $C = 170$
- b) 6 days  $C = 320$
- c) 2 weeks  $C = 720$  ( $d = 14$ )

