

Name: _____

Date: _____

Substitutions

Section A: Substitution into simple expressions (1 mark each)

1. Evaluate $3x + 4$ when $x = 2$.
2. Find the value of $5a - 7$ when $a = 6$.
3. Substitute $y = 3$ into $2y^2$.
4. Calculate $10b + 8$ when $b = 0.5$.
5. Find the value of $4m - 2n$ when $m = 3$ and $n = 1$.

Section B: Substitution into more complex expressions (2 marks each)

6. Evaluate $x^2 - 3x + 5$ when $x = 4$.
7. Find the value of $2p^2 + 3q$ when $p = 2$ and $q = -1$.
8. Calculate $7r - r^2$ when $r = 5$.
9. Substitute $x = 3$ and $y = -2$ into $5x + 2y^2$.
10. Solve $a^2 - 2b^3$ when $a = 4$ and $b = 1$.

Section C: Solving equations with substitution (2 marks each)

11. Solve for y when $y = 3x + 2$ and $x = 5$.
12. If $z = 2y - x$, find z when $y = 6$ and $x = 4$.
13. Substitute $a = 2b - 1$ into $a + b = 10$ to find b .
14. Solve $c = 4d + 7$ when $d = 3$.
15. If $p = q^2 + 3q$, find p when $q = -3$.

Section D: Word problems involving substitution (3 marks each)

16. A car travels $d = 50t + 20$ kilometers, where t is time in hours. How far does the car travel in 3 hours?
17. The area of a rectangle is given by $A = l \cdot w$. Find A when $l = 8$ cm and $w = 5$ cm.
18. A student earns $E = 15h + 25$, where h is the number of hours worked. How much does the student earn after working 10 hours?
19. The volume of a cylinder is $V = \pi r^2 h$. Find V when $r = 3$ and $h = 4$. Use $\pi = 3.14$.
20. A ball's height is modeled by $h = -5t^2 + 20t + 2$, where t is time in seconds. What is the height of the ball after 2 seconds?

Substitutions**Section A**

1. 10

2. 23

3. 18

4. 13

5. 10

Section C

11. 17

12. 8

13. $b = 5.5$

14. 19

15. 0

Section B

6. 25

7. 7

8. 10

9. 47

10. 14

Section D

16. 170 km

17. 40 cm^2

18. 175

19. 113.04 cm^3

20. 20.42 m