SUBSTITUTING INTO FORMULAE

Answer all of these questions. Remember to show your working out in all questions.

MAIN QUESTIONS

1. If $a = 3$ and $b = 4$, find $2a + b$
2. If $x = 5$ and $y = 2$, find $3x - y$
3. If $m = 6$ and $n = 3$, find $m^2 + n^2$
4. If $p = 4$ and $q = 7$, find $2(p + q)$
5. If $r = 8$ and $s = 2$, find $(r + s)/(r - s)$
6. If $a = 5$, $b = 3$, $c = 2$, find $a^2 + b^2 - c^2$
7. If $x = 4$, $y = 6$, $z = 2$, find $2x + 3y - z$
8. If $m = 7$, $n = 4$, find $(m + n)^2 - (m - n)^2$
9. If $p = 9$, $q = 5$, $r = 3$, find $p^2 - q^2 + r^2$
10. If $a = 6$, $b = 2$, $c = 4$, find $(a + b + c)^2$
11. If $x = 8$, $y = 3$, $z = 5$, find $x^3 - y^3 + z^3$
12. If $m = 10$, $n = 6$, $p = 4$, find $m^2 - n^2 + p^2$
13. If $a = 7$, $b = 5$, $c = 3$, find $2a^2 - 3b^2 + c^2$
14. If $x = 12$, $y = 8$, $z = 4$, find $(x + y + z)/(x - y - z)$
15. If $p = 15$, $q = 9$, $r = 6$, find $p^2 + q^2 - r^2$
16. If $m = 20$, $n = 12$, find $(m + n)^2 - (m - n)^2$
17. If $a = 25$, $b = 15$, $c = 10$, find $a^2 - b^2 + c^2$
18. If $x = 18$, $y = 11$, $z = 7$, find $3x^2 - 2y^2 + z^2$
19. If $p = 30$, $q = 18$, $r = 12$, find $(p + q + r)^2 - (p - q - r)^2$
20. If $m = 16$, $n = 9$, find $m^3 - n^3$

21. If a = 24, b = 13, c = 8, find $2a^2 + 3b^2 - 4c^2$

22. If x = 32, y = 19, z = 14, find $(x + y + z)^2 - (x - y - z)^2$

23. If p = 40, q = 23, r = 17, find $p^2 - q^2 + r^2$

24. If m = 50, n = 31, find $(m + n)^3 - (m - n)^3$

25. If a = 36, b = 25, c = 16, find $a^2 + b^2 - c^2$

26. If x = 45, y = 28, z = 19, find $3x^2 - 2y^2 + z^2$

27. If p = 60, q = 37, r = 26, find $(p + q + r)^2 - (p - q - r)^2$

28. If m = 75, n = 46, find $m^3 - n^3$

29. If a = 64, b = 39, c = 25, find $2a^2 + 3b^2 - 4c^2$

30. If x = 100, y = 63, z = 37, find $(x + y + z)^2 - (x - y - z)^2$

MASTER QUESTIONS

M1. A rectangle has length 12cm and width 8cm. Calculate its perimeter using the formula P = 2(l + w)

M2. A triangle has base 15cm and height 10cm. Find its area using A = ½bh

M3. A circle has radius 7cm. Calculate its circumference using C = 2πr

M4. A cube has side length 5cm. Find its volume using $V = s^3$

M5. A rectangular prism has length 8cm, width 6cm, and height 4cm. Calculate its volume using V = lwh

M6. A cylinder has radius 3cm and height 10cm. Find its volume using $V = \pi r^2 h$

M7. A triangle has sides 13cm, 14cm, and 15cm. Calculate its area using Heron's formula

M8. A sphere has radius 6cm. Find its volume using $V = 4/3\pi r^3$

M9. A cone has radius 5cm and height 12cm. Calculate its volume using $V = \frac{1}{3}\pi r^2 h$

M10. A pyramid has a square base with side 8cm and height 9cm. Find its volume using $V = \frac{1}{3}Bh$