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	10	2.	If x = 5 and y = 2, find 3x - y	13
3.	If m = 6 and n = 3, find $m^2 + n^2$	45	4.	If p = 4 and q = 7, find 2(p + q)	22
5.	If r = 8 and s = 2, find (r + s)/(r - s)	5/3	6.	If a = 5, b = 3, c = 2, find $a^2 + b^2 - c^2$	30
7.	If x = 4, y = 6, z = 2, find 2x + 3y - z	26	8.	If m = 7, n = 4, find $(m + n)^2 - (m - n)^2$	56
9.	If p = 9, q = 5, r = 3, find $p^2 - q^2 + r^2$	65	10.	If a = 6, b = 2, c = 4, find $(a + b + c)^2$	144
11.	If x = 8, y = 3, z = 5, find $x^3 - y^3 + z^3$	544	12.	If m = 10, n = 6, p = 4, find $m^2 - n^2 + p^2$	80
13.	If a = 7, b = 5, c = 3, find $2a^2 - 3b^2 + c^2$	32	14.	If x = 12, y = 8, z = 4, find (x + y + z)/(x - y - z)	6
15.	If p = 15, q = 9, r = 6, find $p^2 + q^2 - r^2$	270	16.	If m = 20, n = 12, find $(m + n)^2 - (m - n)^2$	480
17.	If a = 25, b = 15, c = 10, find $a^2 - b^2 + c^2$	500	18.	If x = 18, y = 11, z = 7, find $3x^2 - 2y^2 + z^2$	771
19.	If p = 30, q = 18, r = 12, find $(p + q + r)^2 - (p - q - r)^2$	3600	20.	If m = 16, n = 9, find $m^3 - n^3$	3367

21. If $a = 24, b = 13, c = 8$, find $2a^2 + 3b^2 - 4c^2$ | 1147

22. If $x = 32, y = 19, z = 14$, find $(x + y + z)^2 - (x - y - z)^2$ | 3640

23. If $p = 40, q = 23, r = 17$, find $p^2 - q^2 + r^2$ | 1120

24. If $m = 50, n = 31$, find $(m + n)^3 - (m - n)^3$ | 223260

25. If $a = 36, b = 25, c = 16$, find $a^2 + b^2 - c^2$ | 1065

26. If $x = 45, y = 28, z = 19$, find $3x^2 - 2y^2 + z^2$ | 4548

27. If $p = 60, q = 37, r = 26$, find $(p + q + r)^2 - (p - q - r)^2$ | 14760

28. If $m = 75, n = 46$, find $m^3 - n^3$ | 298079

29. If $a = 64, b = 39, c = 25$, find $2a^2 + 3b^2 - 4c^2$ | 10235

30. If $x = 100, y = 63, z = 37$, find $(x + y + z)^2 - (x - y - z)^2$ | 40000

MASTER QUESTIONS

M1. A rectangle has length 12cm and width 8cm. Calculate its perimeter using the formula $P = 2(l + w)$ | 40cm

M2. A triangle has base 15cm and height 10cm. Find its area using $A = \frac{1}{2}bh$ | $75cm^2$

M3. A circle has radius 7cm. Calculate its circumference using $C = 2\pi r$ | 44cm

M4. A cube has side length 5cm. Find its volume using $V = s^3$ | $125cm^3$

M5. A rectangular prism has length 8cm, width 6cm, and height 4cm. Calculate its volume using $V = lwh$ | $192cm^3$

M6. A cylinder has radius 3cm and height 10cm. Find its volume using $V = \pi r^2 h$ | $90\pi\ cm^3$

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

$84cm^2$

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

$288\pi\ cm^3$

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

$100\pi\ cm^3$

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

$192cm^3$