FACTORISING EXPRESSIONS

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

MAIN QUESTIONS

1. $6x + 9$
2. $4y^2 - 16$
3. $x^2 - 9$
4. $25a^2 - 16b^2$
5. $x^2 + 7x + 12$
6. $y^2 - 5y + 6$
7. $z^2 + 2z - 15$
8. $2x^2 + 8x + 6$
9. $3a^2 - 12a + 9$
10. $4b^2 + 20b + 25$
11. $6x^2 - 24$
12. $x^2 + 11x + 30$
13. $y^2 - 8y + 15$
14. $z^2 + z - 12$
15. $2x^2 + 14x + 20$
16. $3a^2 - 15a + 18$
17. $4b^2 - 12b + 9$
18. $5x^2 - 45$
19. $x^2 + 13x + 42$
20. $y^2 - 10y + 21$
21. $z^2 + 3z - 28$
22. $2x^2 + 16x + 30$
23. $3a^2 - 21a + 30$
24. $4b^2 + 28b + 49$
25. $6x^2 - 54$
26. $x^2 + 17x + 72$
27. $y^2 - 12y + 35$
28. $z^2 + 5z - 36$
29. $2x^2 + 22x + 48$
30. $3a^2 - 27a + 54$

MASTER QUESTIONS

M1. A rectangle has an area expressed as $x^2 + 8x + 15$. Factorise this expression to find possible dimensions.

M2. The area of a square garden is $4x^2 + 20x + 25$. Factorise to find the side length.

M3. A number squared minus 9 times the number plus 20 equals zero. Factorise to find possible values.

M4. The product of two consecutive odd numbers is 143. Form and factorise an equation to find the numbers.

M5. A right-angled triangle has sides measuring x, x+1, and x+2. Using Pythagoras' theorem, form and factorise an equation.

M6. The area of a photo frame is $2x^2 + 12x + 16$. Factorise to find possible dimensions if the length is 2cm more than the width.

M7. A number is 5 less than its square. Form and factorise an equation to find the number.

M8. The sum of a number and its reciprocal is 2.5. Form and factorise an equation to find the number.

M9. A car travels at speed x km/h for 2 hours, then at (x+10) km/h for 3 hours, covering 210km total. Form and factorise an equation.

M10. The difference between a number and its square root is 6. Form and factorise an equation after substitution.