

Factorisation - Lesson 6

Factorising a Difference of Two Squares (2 Letters - With Common Factor)

LI

- Factorise expressions of the form $Cx^2 - Dy^2$ where C and D have a common factor.

SC

- Number factors.
- Square roots.

Example 1

$$2x^2 - 18$$

$$= 2(x^2 - 9)$$

$$= 2(x + 3)(x - 3)$$

Example 2

$$8x^2 - 18$$

$$= 2(4x^2 - 9)$$

$$= 2(2x + 3)(2x - 3)$$

Example 3

$$3x^2 - 48y^2$$
$$= 3(x^2 - 16y^2)$$

$$= 3(x + 4y)(x - 4y)$$

Example 4

$$\begin{aligned} & 75 p^2 - 243 H^2 \\ = & 3 (25 p^2 - 81 H^2) \\ = & 3 (5 p + 9 H) (5 p - 9 H) \end{aligned}$$

Example 5

$$\frac{2}{81} x^2 - \frac{18}{25} y^2$$

$$= 2 \left(\frac{1}{81} x^2 - \frac{9}{25} y^2 \right)$$

$$= 2 \left(\frac{1}{9} x + \frac{3}{5} y \right) \left(\frac{1}{9} x - \frac{3}{5} y \right)$$

1) $3x^2 - 3y^2$	7) $12y^2 - 108D^2$	13) $\frac{2}{25}T^2 - \frac{2}{81}L^2$
2) $2x^2 - 50M^2$	8) $6S^2 - 54x^2$	14) $\frac{3}{400}f^2 - \frac{12}{81}P^2$
3) $4B^2 - 36n^2$	9) $18z^2 - 32R^2$	15) $\frac{45}{64}d^2 - \frac{5}{121}X^2$
4) $5E^2 - 45c^2$	10) $27A^2 - 243w^2$	16) $\frac{7}{484}V^2 - \frac{63}{289}b^2$
5) $12p^2 - 75v^2$	11) $50u^2 - 162C^2$	17) $\frac{17}{441}N^2 - \frac{68}{169}e^2$
6) $99g^2 - 44F^2$	12) $32Q^2 - 200a^2$	18) $\frac{21}{625}A^2 - \frac{189}{256}F^2$

Answers

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|---------------------------|--|
| 1) $3(x + y)(x - y)$ | 10) $3(3A + 9w)(3A - 9w)$ |
| 2) $2(x + 5M)(X - 5M)$ | 11) $2(5u + 9C)(5u - 9C)$ |
| 3) $4(B + 3n)(B - 3n)$ | 12) $8(2Q + 5a)(2Q - 5a)$ |
| 4) $5(E + 3c)(E - 3c)$ | 13) $2(\frac{1}{5}T + \frac{1}{9}L)(\frac{1}{5}T - \frac{1}{9}L)$ |
| 5) $3(2p + 5v)(2p - 5v)$ | 14) $3(\frac{1}{20}f + \frac{2}{9}p)(\frac{1}{20}f - \frac{2}{9}p)$ |
| 6) $11(3g + 2F)(3g - 2F)$ | 15) $5(\frac{3}{8}d + \frac{1}{11}X)(\frac{3}{8}d - \frac{1}{11}X)$ |
| 7) $12(y + 3D)(y - 3D)$ | 16) $7(\frac{1}{22}V + \frac{3}{17}b)(\frac{1}{22}V - \frac{3}{17}b)$ |
| 8) $6(S + 3x)(S - 3x)$ | 17) $17(\frac{1}{21}N + \frac{2}{13}e)(\frac{1}{21}N - \frac{2}{13}e)$ |
| 9) $2(3z + 4R)(3z - 4R)$ | 18) $21(\frac{1}{25}A + \frac{3}{16}F)(\frac{1}{25}A - \frac{3}{16}F)$ |