

Mathematics Revision Exercises

Factorisation

1. Fully factorise the following by taking out the COMMON FACTOR;-

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|-----------------------|-----------------------|----------------|
| a) $2a+2b$ | b) $3x+9a$ | c) $4ab+a$ |
| d) $3x^2+6x$ | e) $3\tan^2x+6\tan x$ | f) $3a^2b-a^2$ |
| g) $4pq^2-pq$ | h) $7a^2x+2ax+a$ | i) $100p^2-50$ |
| j) $10xy^2-5xy+5x^2y$ | k) m^2n+n^2m | l) $apy-ay$ |

2. Fully factorise the following DIFFERENCE OF TWO SQUARES;-

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|------------------|------------------|---------------------------|
| a) x^2-y^2 | b) $9x^2-y^2$ | c) x^2-9y^2 |
| d) $25a^2-b^2$ | e) $81p^2-25x^2$ | f) $100y^2-121x^2$ |
| g) $50p^2-18q^2$ | h) $5p^2-5m^2$ | i) $64r^2-9$ |
| j) $k^2-(pq)^2$ | k) a^2-1 | l) $3-3x^2$ |
| m) $(a-b)^2-100$ | n) $1-(p-q)^2$ | o) $c^2-(a+b)^2$ |
| p) x^2-x^4 | q) t^3-t | r) $48\tan^2A - 3\tan^2B$ |

3. Fully factorise the following QUADRATICS;-

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|-------------------|------------------|------------------|
| a) x^2+3x+2 | b) x^2+4x+3 | c) $x^2+7x+10$ |
| d) x^2+2x-3 | e) x^2+x-6 | f) $x^2-7x+10$ |
| g) x^2-4x+3 | h) $x^2+9x+18$ | i) x^2+x-20 |
| j) $2x^2+7x+3$ | k) $3x^2+5x+2$ | l) $4x^2+7x+3$ |
| m) $4x^2+8x+3$ | n) $3x^2+11x-4$ | o) $6x^2+11x-10$ |
| p) $6x^2+41x-7$ | q) $8x^2-8x+2$ | r) $20x^2+4x-7$ |
| s) $12x^2+22x-14$ | t) $9x^2-30x+16$ | u) x^2-4x-5 |
| v) $6x^2-15x-9$ | w) $15x^2+10x-5$ | x) $9-6x-3x^2$ |
| y) $2x^3+8x^2+6x$ | z) $8-2x-3x^2$ | |

ANSWERS

1. a) $2(a+b)$ b) $3(x+3a)$ c) $a(4b+1)$ d) $3x(x+2)$ e) $3\tan x(\tan^2x+2)$ f) $a^2(3b-1)$ g) $p(4q^2-1)$ h) $a(7a^2x+2ax+1)$ i) $50(2p^2-1)$ j) $5xy(2y-1+x)$ k) $m(m+n)$ l) $a(y-1)$

2. a) $(x+y)(x-y)$ b) $(3x+y)(3x-y)$ c) $(x+3y)(x-3y)$ d) $(5a+b)(5a-b)$ e) $(9p+x)(9p-x)$ f) $(10y+11x)(10y-11x)$ g) $(5p+3q)(5p-3q)$ h) $(5p+m)(5p-m)$ i) $(8r+3)(8r-3)$ j) $(k+pq)(k-pq)$ k) $(a+1)(a-1)$ l) $(1+x)(1-x)$ m) $(a+b+10)(a-b-10)$ n) $(1+p+q)(1-p-q)$ o) $(c+a+b)(c-a-b)$ p) $(x-x^2)(x+x^2)$ q) $(t-1)(t+1)$ r) $3(4\tan^2A-\tan^2B)$ s) $(x+2)(x+1)$ t) $(x+3)(x+1)$ u) $(x+6)(x+5)$ v) $(x-4)(x+5)$ w) $(2x+1)(x+3)$ x) $(4x+3)(x+2)$ y) $(2x+1)(x+1)$ z) $(x+2)(x-2)$

3. a) $(x+1)(x+2)$ b) $(x+1)(x+3)$ c) $(x+2)(x+5)$ d) $(x-1)(x-3)$ e) $(x+6)(x-1)$ f) $(x-7)(x+10)$ g) $(x-3)(x-1)$ h) $(x+3)(x+6)$ i) $(x+1)(x-20)$ j) $(2x+1)(x+3)$ k) $(3x+2)(x+1)$ l) $(4x+3)(x+1)$ m) $(4x+3)(x+1)$ n) $(3x+4)(x-1)$ o) $(6x+11)(x-10)$ p) $(6x+41)(x-7)$ q) $(8x-8)(x+2)$ r) $(20x+4)(x-7)$ s) $(12x+22)(x-14)$ t) $(9x-30)(x+16)$ u) $(x-4)(x-5)$ v) $(6x-15)(x-9)$ w) $(15x+10)(x-5)$ x) $(9-6x-3x^2)$ y) $(2x^3+8x^2+6x)$ z) $(8-2x-3x^2)$