

Factoring the Difference of Squares

Factor each completely.

1) $9x^2 - 1$

$$(3x+1)(3x-1)$$

3) $36k^2 - 1$

$$(6k-1)(6k+1)$$

5) $2x^2 - 18$

$$2(x^2-9) = 2(x+3)(x-3)$$

7) $180m^2 - 5$

$$5(36m^2 - 1) = 5(6m-1)(6m+1)$$

9) $150k^2 - 216$

$$6(25k^2 - 36) = 6(5k-6)(5k+6)$$

11) $3n^2 - 75$

$$3(n^2-25) = 3(n+5)(n-5)$$

13) $a^2 - 25b^2$

$$(a-5b)(a+5b)$$

15) $25x^2 + 16y^2$

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17) $x^2 - 9y^2$

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

19) $9x^2 - 16y^2$

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

21) $36a^4 - 25b^4$

$$(6a^2-5b^2)(6a^2+5b^2)$$

23) $125m^4 - 20n^4$

$$5(25m^4 - 4n^4) = 5(5m^2-2n^2)(5m^2+2n^2)$$

25) $4x^4 - 144y^4$

$$(2x^2-12y^2)(2x^2+12y^2)$$

27) $7x^4 - 28y^4$

$$7(x^4-4y^4) = 7(x^2+2y^2)(x^2-2y^2)$$

29) $16m^6 - n^6$

$$(4m^3-n^3)(4m^3+n^3)$$

2) $4n^2 - 49$

$$(2n-7)(2n+7)$$

4) $p^2 - 36$

$$(p-6)(p+6)$$

6) $196n^2 - 144$

$$(14n+12)(14n-12)$$

8) $294r^2 - 150$

$$6(49r^2 - 25) = 6(7r+5)(7r-5)$$

10) $20a^2 - 45$

$$5(4a^2-9) = 5(2a+3)(2a-3)$$

12) $24x^3 - 54x$

$$6x(4x^2-9) = 6x(2x-3)(2x+3)$$

14) $4x^2 + 49y^2$

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16) $6a^2 + 96b^2$

$$6(a^2+16b^2)$$

18) $49x^2 - 25y^2$

$$(7x-5y)(7x+5y)$$

20) $54v^2 - 6u^2$

$$6(9v^2 - u^2)$$

$$6(3v-u)(3v+u)$$

22) $2x^4r - 72y^4r$

$$2r(x^4 - 36y^4) = 2r(x^2 - 6y^2)(x^2 + 6y^2)$$

24) $216x^4ay - 6y^5a$

$$6ay(36x^4 - y^4) = 6ay(6x^2+y^2)(6x^2-y^2)$$

26) $4x^4m - 36y^4m$

$$m(4x^4 - 36y^4) = m(2x^2-by^2)(2x^2+by^2)$$

28) $7x^4 - 343y^4$

$$7(x^4 - 49y^4) = 7(x^2-7y^2)(x^2+7y^2)$$

30) $64x^6 - y^6$

$$(8x^3 - y^3)(8x^3 + y^3)$$