

Factor each completely.

1) $648x^3 + 3$

2) $x^3 - 27$

3) $27x^3 - 125$

4) $500m^3 + 108$

5) $192x^3 + 81$

6) $1 + 216x^3$

7) $500x^3 + 32$

8) $-x^3 + 27$

9) $-8x^3 - 27$

10) $250u^3 - 16$

11) $4x^3 - 256$

12) $648 + 375x^3$

Answers to

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|----------------------------------|---------------------------------|-----------------------------------|
| 1) $3(6x + 1)(36x^2 - 6x + 1)$ | 2) $(x - 3)(x^2 + 3x + 9)$ | 3) $(3x - 5)(9x^2 + 15x + 25)$ |
| 4) $4(5m + 3)(25m^2 - 15m + 9)$ | 5) $3(4x + 3)(16x^2 - 12x + 9)$ | 6) $(1 + 6x)(1 - 6x + 36x^2)$ |
| 7) $4(5x + 2)(25x^2 - 10x + 4)$ | 8) $(-x + 3)(x^2 + 3x + 9)$ | 9) $(-2x - 3)(4x^2 - 6x + 9)$ |
| 10) $2(5u - 2)(25u^2 + 10u + 4)$ | 11) $4(x - 4)(x^2 + 4x + 16)$ | 12) $3(6 + 5x)(36 - 30x + 25x^2)$ |

