

Name : \_\_\_\_\_

## Factors: Algebraic Identities

MS3

Factorize each expression using algebraic identities.

1)  $\frac{8}{y^3} - \frac{60}{y^2} + \frac{150}{y} - 125$

2)  $3m^3n^3 + 54m^2n^2 + 324mn + 648$

3)  $32a^3 - 48a^2b + 36a^2c - 12abc + \frac{1}{d^3}$

5)  $p^3q^3 + 9p^2q^2r + 15rs^2t^2 + s^3t^3$

7)  $\frac{2}{u^3} - \frac{18}{u^2v} + \frac{5}{uv}$

9)  $a^3b^2 + 3a^2b^2c + 3ab^2c^2 + b^2c^3$

10)  $w^3 - 12w^2x + 48wx^2 - 64x^3$

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## Answer key

MS3

### Factors: Algebraic Identities

Factorize each expression using algebraic identities.

1)  $\frac{8}{y^3} - \frac{60}{y^2} + \frac{150}{y} - 125$

$\left(\frac{2}{y} - 5\right)^3$

2)  $3m^3n^3 + 54m^2n^2 + 324mn + 648$

$3(mn + 6)^3$

3)  $32a^3 - 48a^2b$

$4(2a - b)^3$

5)  $p^3q^3 + 9p^2q^2r$

$(pq + 3r)^3$

7)  $\frac{2}{u^3} - \frac{18}{u^2v} + \frac{5}{u}$

$2\left(\frac{1}{u} - \frac{3}{v}\right)^3$

9)  $a^3b^2 + 3a^2b^2c + 3ab^2c^2 + b^2c^3$

$b^2(a + c)^3$

10)  $w^3 - 12w^2x + 48wx^2 - 64x^3$

$(w - 4x)^3$

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