

Name : _____

Factors: Algebraic Identities

ES3

Factorize each expression using algebraic identities.

1) $\frac{1}{r^3} - \frac{3s}{r^2} + \frac{3s^2}{r} - s^3$

2) $c^3 + 3c + \frac{3}{c} + \frac{1}{c^3}$

3) $m^3 - 3m^2n +$

$18yz + 64$

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5) $\frac{1}{p^3} + \frac{3}{p^2q} + \frac{3}{pq^2} + \frac{1}{q^3}$

$2 + h^3$

7) $s^3t^3 + 18s^2t^2 +$

3

9) $u^3 - 9u^2 + 27u - 27$

10) $z^3 - 21z^2 + 147z - 343$

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Factors: Algebraic Identities

Factorize each expression using algebraic identities.

1) $\frac{1}{r^3} - \frac{3s}{r^2} + \frac{3s^2}{r} - s^3$

$$\left(\frac{1}{r} - s\right)^3$$

2) $c^3 + 3c + \frac{3}{c} + \frac{1}{c^3}$

$$\left(c + \frac{1}{c}\right)^3$$

3) $m^3 - 3m^2n +$

$$(m - n)^3$$

$8yz + 64$

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5) $\frac{1}{p^3} + \frac{3}{p^2q} + \frac{3}{pq^2} + \frac{1}{q^3}$

$$\left(\frac{1}{p} + \frac{1}{q}\right)^3$$

$2 + h^3$

7) $s^3t^3 + 18s^2t^2 +$

$$(st + 6)^3$$

3

9) $u^3 - 9u^2 + 27u - 27$

$$(u - 3)^3$$

10) $z^3 - 21z^2 + 147z - 343$

$$(z - 7)^3$$