

Name : _____

Factors: Algebraic Identities

MS1

Factorize each expression using algebraic identities.

1) $512u^3 + 576u^2v + 216uv^2 + 27v^3$

2) $4q^3 + \frac{24q^2}{r} + \frac{48q}{r^2} + \frac{32}{r^3}$

3) $5m^3n^4 - 75m$

$4p + 192$

5) $\frac{1}{g^3} - \frac{18h}{g^2} + \frac{10}{g}$

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$3abc^2d^2 - c^3d^3$

7) $432r^3 - 216r^2$

$^2 + 588yz + 343$

9) $t^3u^3 + 3t^2u^3 + 3tu^3 + u^3$

10) $\frac{8}{c^3} - \frac{36}{c^2d} + \frac{54}{cd^2} - \frac{27}{d^3}$

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Factors: Algebraic Identities

Factorize each expression using algebraic identities.

1) $512u^3 + 576u^2v + 216uv^2 + 27v^3$

$(8u + 3v)^3$

2) $4q^3 + \frac{24q^2}{r} + \frac{48q}{r^2} + \frac{32}{r^3}$

$4\left(q + \frac{2}{r}\right)^3$

3) $5m^3n^4 - 75m^2n^3 + 10mn^2 - 5n$

$5n(mn - 5)^3$

4) $4p^3 + 192p^2 + 288p + 144$

5) $\frac{1}{g^3} - \frac{18h}{g^2} + \frac{108h^2}{g} - 216h^3$

$\left(\frac{1}{g} - 6h\right)^3$

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7) $432r^3 - 216r^2st + 54r^2st^2 - 588rst^2 + 343t^3$

$2(6r - st)^3$

9) $t^3u^3 + 3t^2u^3 + 3tu^3 + u^3$

$u^3(t + 1)^3$

10) $\frac{8}{c^3} - \frac{36}{c^2d} + \frac{54}{cd^2} - \frac{27}{d^3}$

$\left(\frac{2}{c} - \frac{3}{d}\right)^3$