

Name : _____

Factors: Algebraic Identities

MS2

Factorize each expression using algebraic identities.

1) $3a^2b^3 - 27a^2b^2 + 81a^2b - 81a^2$

2) $g^3 - 12g^2h + 48gh^2 - 64h^3$

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

$- 441tu^2v^2 + 343u^3v^3$

5) $s^4 + 24s^3t + 1$

$- 250$

7) $8m^3n^3 - 12m$

$+ 18vw^2 + w^3$

9) $\frac{64}{x^3} - \frac{48y}{x} + 12xy^2 - x^3y^3$

10) $6s^3 + 72s^2 + 288s + 384$

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Name : _____

Answer key

MS2

Factors: Algebraic Identities

Factorize each expression using algebraic identities.

1) $3a^2b^3 - 27a^2b^2 + 81a^2b - 81a^2$

$3a^2(b - 3)^3$

2) $g^3 - 12g^2h + 48gh^2 - 64h^3$

$(g - 4h)^3$

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

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

$- 441tu^2v^2 + 343u^3v^3$

5) $s^4 + 24s^3t + 144s^2t^2 + 432st^3 + 256t^4$

$s(s + 8t)^3$

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$- 250$

7) $8m^3n^3 - 12m^2n^2 + 6mn - 1$

$(2mn - 1)^3$

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$+ 18vw^2 + w^3$

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9) $\frac{64}{x^3} - \frac{48y}{x} + 12xy^2 - x^3y^3$

$\left(\frac{4}{x} - xy\right)^3$

10) $6s^3 + 72s^2 + 288s + 384$

$6(s + 4)^3$