

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

## Expand: Algebraic Identities

Sheet 1

Expand each expression using algebraic identities.

1)  $(4a + 3b)(16a^2 - 12ab + 9b^2)$

2)  $(cd - 4)(c^2d^2 + 4cd + 16)$

3)  $(2x - 5y)(4x^2 + 10xy + 25y^2)$

4)  $(7s + 9)(49s^2 - 63s + 81)$

5)  $(u + 6v)(u^2 - 6uv + 36v^2)$

6)  $\left(1 - \frac{3}{k}\right)\left(1 + \frac{3}{k} + \frac{9}{k^2}\right)$

7)  $(m^2 - 4)(m^4 + 4m^2 + 16)$

8)  $(r + s)(r^2 - rs + s^2)$

9)  $\left(8 + \frac{5}{pq}\right)\left(64 - \frac{40}{pq} + \frac{25}{p^2q^2}\right)$

10)  $(g^3 - h^2)(g^6 + g^3h^2 + h^4)$

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## Answer key

Sheet 1

### Expand: Algebraic Identities

Expand each expression using algebraic identities.

1)  $(4a + 3b)(16a^2 - 12ab + 9b^2)$

**$64a^3 + 27b^3$**

2)  $(cd - 4)(c^2d^2 + 4cd + 16)$

**$c^3d^3 - 64$**

3)  $(2x - 5y)(4x^2 + 10xy + 25y^2)$

**$8x^3 - 125y^3$**

4)  $(7s + 9)(49s^2 - 63s + 81)$

**$343s^3 + 729$**

5)  $(u + 6v)(u^2 - 6uv + 36v^2)$

**$u^3 + 216v^3$**

6)  $\left(1 - \frac{3}{k}\right)\left(1 + \frac{3}{k} + \frac{9}{k^2}\right)$

**$-\frac{27}{k^3} + 1$**

7)  $(m^2 - 4)(m^4 + 4m^2 + 16)$

**$m^6 - 64$**

8)  $(r + s)(r^2 - rs + s^2)$

**$r^3 + s^3$**

9)  $\left(8 + \frac{5}{pq}\right)\left(64 - \frac{40}{pq} + \frac{25}{p^2q^2}\right)$

**$\frac{125}{p^3q^3} + 512$**

10)  $(g^3 - h^2)(g^6 + g^3h^2 + h^4)$

**$g^9 - h^6$**