

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

## Factors: Algebraic Identity

ES1

Factorize each expression using algebraic identity.

1)  $t^2 + u^2 + v^2 + 2tu - 2uv - 2tv$

2)  $m^2 + n^2 - 2mn - 6n + 6m + 9$

3)  $x^2 + y^2 + 2xy + \frac{1}{z^2} + \frac{2y}{z} + \frac{2x}{z}$

4)  $s^2 + t^2 - 2st - 12t + 12s + 36$

5)  $r^2 + s^2 + 2rs + 10s + 10r + 25$

6)  $c^2 + d^2 - 2cd + 14d - 14c + 49$

7)  $k^2 - 18k + \frac{1}{k^2} - \frac{18}{k} + 83$

8)  $p^2 + q^2 + 2pq + 4q + 4p + 4$

9)  $h^2 + g^2 - 2gh - 16g + 16h + 64$

10)  $a^2 + b^2 + c^2 - 2ab - 2bc + 2ac$

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## Answer key

ES1

### Factors: Algebraic Identity

Factorize each expression using algebraic identity.

1)  $t^2 + u^2 + v^2 + 2tu - 2uv - 2tv$

$(t + u - v)^2$

2)  $m^2 + n^2 - 2mn - 6n + 6m + 9$

$(m - n + 3)^2$

3)  $x^2 + y^2 + 2xy + \frac{1}{z^2} + \frac{2y}{z} + \frac{2x}{z}$

$(x + y + \frac{1}{z})^2$

4)  $s^2 + t^2 - 2st - 12t + 12s + 36$

$(s - t + 6)^2$

5)  $r^2 + s^2 + 2rs + 10s + 10r + 25$

$(r + s + 5)^2$

6)  $c^2 + d^2 - 2cd + 14d - 14c + 49$

$(-c + d + 7)^2$

7)  $k^2 - 18k + \frac{1}{k^2} - \frac{18}{k} + 83$

$(k + \frac{1}{k} - 9)^2$

8)  $p^2 + q^2 + 2pq + 4q + 4p + 4$

$(p + q + 2)^2$

9)  $h^2 + g^2 - 2gh - 16g + 16h + 64$

$(h - g + 8)^2$

10)  $a^2 + b^2 + c^2 - 2ab - 2bc + 2ac$

$(a - b + c)^2$