

Name : _____

Expand: Algebraic Identities

ES1

Expand each expression using algebraic identities.

1) $(x + 9)^2$

2) $\left(y + \frac{3}{z}\right)\left(y + \frac{5}{z}\right)$

3) $(r + s + t)^2$

4) $(3k - 7)^2$

5) $(cd + 6)(cd - 6)$

6) $(2a + b)^2$

7) $(p + 4)(p - 4)$

8) $(2 + r)(2 - 3r)$

9) $\left(\frac{1}{n} + n - 8\right)^2$

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

Name: _____

Answer key

ES1

Expand: Algebraic Identities

Expand each expression using algebraic identities.

1) $(x + 9)^2$

$$x^2 + 18x + 81$$

2) $\left(y + \frac{3}{z}\right)\left(y + \frac{5}{z}\right)$

$$y^2 + \frac{15}{z^2} + \frac{8y}{z}$$

3) $(r + s + t)^2$

$$r^2 + s^2 + t^2 + 2rs + 2st + 2rt$$

4) $(3k - 7)^2$

$$9k^2 - 42k + 49$$

5) $(cd + 6)(cd - 6)$

$$c^2d^2 - 36$$

6) $(2a + b)^2$

$$4a^2 + 4ab + b^2$$

7) $(p + 4)(p - 4)$

$$p^2 - 16$$

8) $(2 + r)(2 - 3r)$

$$-3r^2 - 4r + 4$$

9) $\left(\frac{1}{n} + n - 8\right)^2$

$$n^2 - 16n + \frac{1}{n^2} - \frac{16}{n} + 66$$

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

$$g^8 - 2g^4h^3 + h^6$$