

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

## Factors: Algebraic Identities

Sheet 1

Factorize each expression using algebraic identities.

1)  $t^4 + 2 + \frac{1}{t^4}$

2)  $2m^2n^6 - 20mn^3 + 50$

3)  $(3x - 5)^2 - 64$

4)  $9h^6 + 36h^3 + 35$

5)  $4k^8 + 8k^4 - 45$

6)  $4a^2b^4 + 16a^2c^4 + 16a^2b^2c^2$

7)  $64p^4 + 16q^4 - 64p^2q^2$

8)  $49r^{10} - \frac{9}{s^8}$

9)  $(s + 2)^2 + 17(s + 2) + 72$

10)  $v^9 - u^6v$

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

## Answer key

Sheet 1

### Factors: Algebraic Identities

Factorize each expression using algebraic identities.

1)  $t^4 + 2 + \frac{1}{t^4}$

$$\left(t^2 + \frac{1}{t^2}\right)^2$$

2)  $2m^2n^6 - 20mn^3 + 50$

$$2(mn^3 - 5)^2$$

3)  $(3x - 5)^2 - 64$

$$(3x + 3)(3x - 13)$$

4)  $9h^6 + 36h^3 + 35$

$$(3h^3 + 5)(3h^3 + 7)$$

5)  $4k^8 + 8k^4 - 45$

$$(2k^4 + 9)(2k^4 - 5)$$

6)  $4a^2b^4 + 16a^2c^4 + 16a^2b^2c^2$

$$4a^2(b^2 + 2c^2)^2$$

7)  $64p^4 + 16q^4 - 64p^2q^2$

$$16(2p^2 - q^2)^2$$

8)  $49r^{10} - \frac{9}{s^8}$

$$\left(7r^5 + \frac{3}{s^4}\right)\left(7r^5 - \frac{3}{s^4}\right)$$

9)  $(s + 2)^2 + 17(s + 2) + 72$

$$(s + 10)(s + 11)$$

10)  $v^9 - u^6v$

$$v(v^4 + u^3)(v^4 - u^3)$$