Name: **Worksheet(5)**   **Grade:8(A, B)**

Subject: Factorising using Difference of two squares

Date :

Difference of Two Squares

Difference of two squares is a type of quadratic factorisation used when an algebraic expression is made up of a squared term subtracted from another squared term.

To factorise expressions in the form $a^2 - b^2$ we need **double brackets.**

Factorising

$$a^2 - b^2 = (a + b)(a - b)$$

Exapanding brackets

THIRD SPACE LEARNING

Factor Difference of Perfect Squares

$$a^2 - b^2 = (a + b)(a - b)$$

Examples:

$16x^2 - 25$
$= (4x)^2 - 5^2$
$= (4x + 5)(4x - 5)$

$3x^2 - 75y^2$
$= 3(x^2 - 25y^2)$
$= 3\left(x^2 - (5y)^2\right)$
$= 3(x + 5y)(x - 5y)$

1 $u^2 - 64$ $= (u+8)(u-8)$

---

2 $\frac{1}{9}x^2 - \frac{1}{25}$ $= (\frac{1}{3}x + \frac{1}{5})(\frac{1}{3}x - \frac{1}{5})$

---

3 $36y^2 - 1 = (6y + 1)(6y - 1)$

---

4 $v^4 - 625r^2 = (v^2 + 25r)(v^2 - 25r)$

---

5 $a^2 - w^2z^2 = (a + wz)(a - wz)$

---

6 $-16y^2 + 49 = 49 - 16y^2 = (7 + 4y)(7 - 4y)$

---

7 $ab^2 - 100a$

$= a(b^2 - 100)$ H.C.F

$= a(b + 10)(b - 10)$

8 $x - x^3$

$= x(1 - x^2)$ H.C.F

$= x(1 + x)(1 - x)$

1 $a^2 - 49$

$= (a + 7)(a - 7)$

2 $100 - w^2$

$= (10 + w)(10 - w)$

3 $9y^2 - 36$

$= 9(y^2 - 4)$ H.C.F

$= 9(y + 2)(y - 2)$

4 $x^2 y^2 - 64$

$= (xy + 8)(xy - 8)$

5 $r^2 - 0.36m^2$

$= (r + 0.6m)(r - 0.6m)$

6 $24c^2 - 6$

$= 6(4c^2 - 1)$ H.C.F

$= 6(2c + 1)(2c - 1)$

7 $5y^3 m - 45ym^3$

$= 5ym(y^2 - 9m^2)$

$= 5ym(y + 3m)(y - 3m)$

8 $w^4 - k^4$

$= (w^2 + k^2)(w^2 - k^2)$

$= (w^2 + k^2)(w + k)(w - k)$

9 $-y^2 + 144x^2 = 144x^2 - y^2$

$= (12x + y)(12x - y)$

10 $\frac{1}{16} y^2 - \frac{4}{9}$

$= (\frac{1}{4}y + \frac{2}{3})(\frac{1}{4}y - \frac{2}{3})$

11 $(xb^2 - x^3) + (y^2 b^2 - y^2 x^2)$

$x(b^2 - x^2) + y^2(b^2 - x^2)$ Grouping

$(b^2 - x^2)(x + y^2)$

$(b + x)(b - x)(x + y^2)$

Wisam   Al − mashni

3