

Today's Learning Goal(s):

By the end of the class, I will be able to:

- a) recognize and factor a difference of squares.
- b) recognize and factor a perfect square trinomial.

Any questions from last day's homework?

pp. 246-247 # 5abc, 6abc, 11

Enrichment: p. 247 #15, 19

p.246 5a) $3x^2 + 7xy + 2y^2$ $M: 3x^2 = 6$
 $A: 7$

$$= \frac{(3x + y)(3x + 6y)}{3}$$

$$= \frac{(3x + y) \cancel{3}(x + 2y)}{3}$$

$$= (3x + y) \cancel{3}^{\cancel{3}}(x + 2y)$$

$$\begin{array}{c} 16 \\ \hline 23 \end{array}$$

MPM 2DI

5.6 Factor a Difference of Squares and
a Perfect Square TrinomialDate: Apr. 29/16

Recall from Lesson 5.2 on Special Products:

Warm-up: Expand and simplify.

a) $(x+3)(x-3)$

$$= x^2 - 3x + 3x - 9$$

$$= x^2 - 9$$

b) $(3x+5y)(3x-5y)$

$$= 9x^2 - 15xy + 15xy - 25y^2$$

$$= 9x^2 - 25y^2$$

c) $(x-6)^2$

$$= x^2 - 12x + 36$$

d) $(2x-5y)^2$

$$= 4x^2 - 20xy + 25y^2$$

5.6 Factoring a Difference of Squares and a Perfect Square Trinomial (Fall 2014)-s16.notebook

Ex. 1 Factor the following difference of squares.

a) $x^2 - 16$

b) $36x^2 - 49y^2$

c) $3x^2 - 75$

$$= (x+4)(x-4) = (6x-7y)(6x+7y) = 3(x^2-25) = 3(x+5)(x-5)$$

d) $(x+4)^2 - (x-2)^2$ let $w = x+4$

$$\therefore w^2 - p^2 \quad p = x-2$$

$$= (w-p)(w+p)$$

$$= (x+4 - (x-2))(x+4 + (x-2))$$

$$= (x+4 - x + 2)(x+4 + x - 2)$$

$$= (6)(2x+2)$$

$$= 6(2(x+1))$$

$$= 12(x+1)$$

5.6 Factoring a Difference of Squares and a Perfect Square Trinomial (Fall 2014)-s16.notebook

Ex.2 Factor the following perfect square trinomials.

a) $x^2 + 10x + 25$ b) $y^2 - 8y + 16$ c) $4x^2 - 20xy + 25y^2$ d) $18x^2 - 24x + 8$

$$\begin{aligned}
 &= (x+5)(x+5) &= (y-4)^2 &= (2x-5y)^2 &= 2(9x^2 - 12x + 4) \\
 &= (x+5)^2 &&&= 2(3x-2)^2
 \end{aligned}$$

Ex.3 Determine all the values of b , so that each trinomial is a perfect square.

a) $x^2 + bx + 9$

$$\begin{aligned}
 &(x+3)^2 &(x-3)^2 \\
 &x^2 + 6x + 9 &x^2 - 6x + 9 \\
 \therefore b = 6 & \quad b = -6
 \end{aligned}$$

b) $x^2 + 12x + b$

$$\begin{aligned}
 &x^2 + 12x + 36 &(x+6)^2 \\
 \therefore b = 36 & \quad b \neq -36
 \end{aligned}$$

c) $9x^2 + bxy + 25y^2$

$$\begin{aligned}
 &(3x+5y)^2 \\
 &9x^2 + 30xy + 25y^2 \\
 \therefore b = 30 & \quad \text{or } b = -30
 \end{aligned}$$

Ex.4 Evaluate. ("without using a calculator")

a) $36^2 - 34^2$

$$\begin{aligned}
 &= x^2 - y^2 \\
 &= (x-y)(x+y) \\
 &= (36-34)(36+34) \\
 &= 2(70) \\
 &= 140
 \end{aligned}$$

b) 48×52

$$\begin{aligned}
 &= (50-2)(50+2) \\
 &= 50^2 - 2^2 \\
 &= 2500 - 4 \\
 &= 2496
 \end{aligned}$$

Read “Key Concepts” on p.253

Worksheet Factoring Practice ID: 1 #1-18

(All worksheet Answers are posted on the Website)

Optional: pp. 253-255 # 1aceg, 2aceg, 6aceghi, 7, 9, 10bd, 15, 16, 17a, 20a

Enrichment: pp. 254-255 #13, 20, 23

Another Factoring Quiz next Wednesday?

$$\begin{aligned} 1) & 3b^2 - 8b \\ & = b(3b - 8) \end{aligned}$$