

**Before we begin, are there any questions from last day's work?**

*(p. 234 #6)*

pp. 256-257 #2a, 9d, 10a, 14b, 16a, 19e

*(Worksheet: Factoring Practice ID: 3 #1-18)*

*(All worksheet Answers are posted on the Website)*

## Today's Learning Goal(s):

By the end of the class, I will be:

a) ready for the unit summative on Wednesday.

### Today's practice:

p. 257 #15

pp. 258-259 #2b, 3df, 5, 7cd, 8abc, 10a, 12, 13ab, 15a, 16a  
(HINT In 16a, the question is expressed as a difference of squares!)

### *Optional Worksheet: Mixed Factoring #4*

p. 203 #7a (MAKE A GRAPH ON GRID PAPER), 8 (JUST SKETCH IN PART a) – NO GRID REQUIRED)

p. 205 #7 (JUST SKETCH IN PART a) – NO GRID)

p. 316 #4c (NO “CHECK”), 5cd,  
7cde (GRAPH ON GRID PAPER)

$$\begin{aligned} \text{p. 257 19e)} \quad & 9w^2 - 25x^2 \\ & = (3w + 5x)(3w - 5x) \end{aligned}$$

$$\begin{aligned} & 121x^8w^{12} - 144y^{58}z^{22}g^{16} \\ & = (11x^4w^6 + 12y^{29}z^{11}g^8)(11x^4w^6 - 12y^{29}z^{11}g^8) \end{aligned}$$

ID: 3

MPM2D MSIP Factoring Practice "Day 1"...Do your best. Then, check answers from the Key that is on the back!

**REMEMBER** - if the leading term is negative, factor out the negative first!

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**Factor each completely.**

1)  $-2n^2 - 9n + 56$

2)  $15x^2 - 35x$   
 $= 5x(3x - 7)$

3)  $-35n^2 + 50n$

4)  $5x^2 - 19x + 12$

5)  $7b^2 + 8b$

6)  $4a^2 - 25$

7)  $8n^2 + 8n + 2$

8)  $4n^2 - 12n + 9$

9)  $9x^2 - 30x + 25$

**Factor the common factor out of each expression.**

10)  $21y^7 - 28y^{11}x + 35y^8x$

11)  $10 - 15mn - 20mn^2$

12)  $5x^4y^{10} - 20x^7y^2 + 20x^3y^3$

**Factor each completely.**

13)  $9m^2 - 24mn + 16n^2$

14)  $9x^2 - 16y^2$

15)  $16m^2 - 9n^2$

16)  $10k^3 + 2k^2 + 25k + 5$   
 $= 2k^2(5k + 1) + 5(5k + 1)$   
 $= (5k + 1)(2k^2 + 5)$

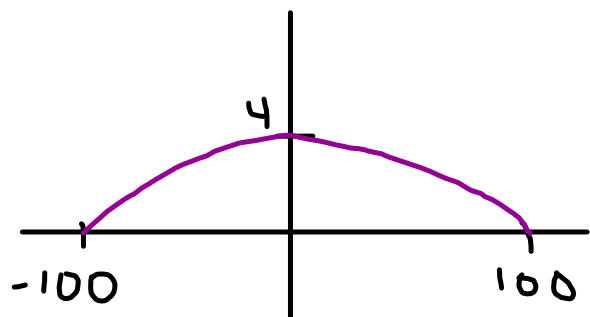
17)  $8a^3 + 6a^2 + 20a + 15$

18)  $9p^3 - 15p^2 + 15p - 25$

p. 290 #10 (from 2 lessons ago 6.3)

A parabolic arch supports a bridge. The arch is 200 m wide at its base and 4 m tall in the middle.

- a) **Show** this information on a graph by placing the vertex on the y-axis so that the x-axis represents the base of the arch.
- b) How high is a point on the arch that is 20 m horizontally from one end?



$$\begin{aligned}y &= a(x-100)(x+100) \\4 &= a(0-100)(0+100) \\ \frac{4}{-10000} &= a \\ a &= \frac{-1}{2500}\end{aligned}$$

MPM2D1 Factoring Review

Date: \_\_\_\_\_

1. Factor by common factoring.

a)  $a^3b^2 + ab^3$

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

b)  $25x^8 - 30x^5 + 35x$

$$= 5x(5x^7 - 6x^4 + 7)$$

c)  $7x(x+2) - 5(x+2)$

$$= (x+2)(7x-5)$$

2. Factor as a difference of squares.

a)  $y^2 - 81$

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

b)  $9m^2 - 1$

$$= (3m+1)(3m-1)$$

c)  $169x^2 - 144z^2$

$$= (13x+12z)(13x-12z)$$

3. Factor as a simple trinomial.

a)  $t^2 + 3t - 10$

$$= (t+5)(t-2)$$

b)  $x^2 - 10x - 24$

$$= (x-12)(x+2)$$

c)  $x^2 - 8x + 16$

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

d)  $x^4 + 6x^2 + 8$

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

4. Factor.

a)  $3m^2 - m - 30$

$$= (3m-10)(m+3)$$

$$= (3m-10) \cancel{3} (m+3)$$

$$= (3m-10) \cancel{3} (m+3)$$

c)  $7x^2 + x - 8$

$$= (7x+8)(x-1)$$

90 1 90

2 45

3 30

4 18

5 15

6 10

7 9

8 8

9 7

10 6

11 5

12 4

13 3

14 2

15 1

8 → 1 8  
→ 2 4

3 → 1 3

b)  $8m^2 - 5m - 3$

$$= (m-1)(8m+3)$$

2 -1  
4 3

6 -4

= 2

$$\begin{pmatrix} 1m & -1 \\ 8m & 3 \end{pmatrix}$$

$$= 3 - 8$$

$$= -5$$

2 -3  
4 1

6 -4

= 2

$$\begin{pmatrix} 1m & -3 \\ 4m & 1 \end{pmatrix}$$

$$= 3 - 8$$

$$= -5$$

5. Factor by grouping.

a)  $\underline{a^2 - 2a} + \underline{ad - 2d}$

$$= a(a-2) + d(a-2)$$

$$= (a-2)(a+d)$$

b)  $\underline{x^4 - 3x^3} + 2x - 6$

$$= x^3(x-3) + 2(x-3)$$

$$= (x-3)(x^3+2)$$

c)  $y^3 + y^2 + 2y + 2$

$$= y^2(y+1) + 2(y+1)$$

$$= (y+1)(y^2+2)$$

6. Factor fully. It might be necessary to use more than one factoring strategy in order to fully factor these polynomial expressions.

a)  $x^3 - 3x^2 + 2x$

$$= x(x^2 - 3x + 2)$$

$$= x(x-2)(x-1)$$

b)  $2x^4 - 18x^2$

$$= 2x^2(x^2 - 9)$$

$$= 2x^2(x+3)(x-3)$$

c)  $x^3 - x^2 - 4x + 4$

$$= x^2(x-1) - 4(x-1)$$

$$= (x-1)(x^2-4)$$

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