

Last day's Work: **READ pp.101-102**

Sign and **RETURN** the cover sheet with email address **PRINTED**.

pp. 102-104 #1 – 10 [14, 15]

p. 82 #4 (if incomplete from Day 1)

RETURN and correct: *CheckPoint 1.1*

4f 8 2bc
6ce
7c

2. Each expression given can be factored by grouping. Describe how you would group the terms to factor each.

a) $ac + bc - ad - bd$

b) $x^2 + 2x + 1 - y^2 \longrightarrow = \underline{x^2 + 2x + 1} - y^2$

c) $x^2 - y^2 - 10y - 25$

$$= x^2 - 1(y^2 + 10y + 25)$$

$$= x^2 - (y + 5)^2$$

let $w = y + 5$

$$= x^2 - w^2$$

$$= (x - w)(x + w)$$

$$= (x - (y + 5))(x + (y + 5))$$

$$= (x - y - 5)(x + y + 5)$$

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

let $w = x + 1$

$$w^2 - y^2$$

$$= (w - y)(w + y)$$

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

4. Factor.

a) $4x^3 - 6x^2 + 2x$

b) $3x^3y^2 - 9x^2y^4 + 3xy^3$

c) $4a(a + 1) - 3(a + 1)$

d) $7x^2(x + 1) - x(x + 1) + 6(x + 1)$

e) $5x(2 - x) + 4x(2x - 5) - (3x - 4)$

f) $4t(t^2 + 4t + 2) - 2t(3t^2 - 6t + 17)$

$$= 2t \left[2(t^2 + 4t + 2) - 1(3t^2 - 6t + 17) \right]$$

$$= 2t \left[2t^2 + 8t + 4 - 3t^2 + 6t - 17 \right]$$

$$= 2t \left[-t^2 + 14t - 13 \right]$$

$$= -2t (t^2 - 14t + 13)$$

$$= -2t (t - 13)(t - 1)$$

6. Factor.

a) $x^2 - 9$

b) $4n^2 - 49$

c) $x^8 - 1$

d) $9(y - 1)^2 - 25$

e) $3x^2 - 27(2 - x)^2$

f) $-p^2q^2 + 81$

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

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

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

$$7c) \quad \underline{x^3 + x^2 - x - 1}$$

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

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

$$= \underline{(x + 1)(x - 1)(x + 1)}$$

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

$$\rightarrow \text{let } w = (2 - x)$$

$$\therefore 3x^2 - 27w^2$$

$$= 3(x^2 - 9w^2)$$

$$= 3(x - 3w)(x + 3w)$$

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

$$= 3(x - 6 + 3x)(x + 6 - 3x)$$

$$= 3(4x - 6)(-2x + 6)$$

$$= \underline{3(2(2x - 3))(-2(x - 3))}$$

$$= \underline{-12(2x - 3)(x - 3)}$$

8. Andrij claims that the following statement is true:

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

Is Andrij correct? Justify your decision.

$$RS = (x - y)(x^2 + y^2)$$

$$= x^3 + xy^2 - x^2y - y^3$$

$$LS = x^3 - y^3$$

$$\therefore LS \neq RS$$

\therefore Andrij is incorrect.

Please clear off and **separate** your desks. Put your calculator **on the floor**.

No calculators allowed today!

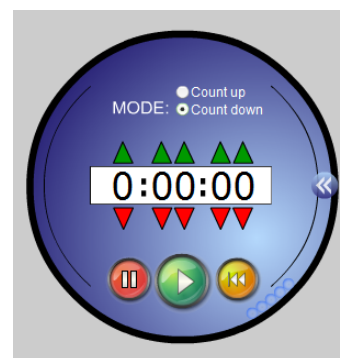
Time for: **Checkpoint 1.2**



First & Last Name:

Amount of homework completed

none/almost none	<input type="checkbox"/>	half or less	<input type="checkbox"/>	more than half	<input type="checkbox"/>	all	<input type="checkbox"/>
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Today's Homework Practice includes:

Sign and **RETURN** the cover sheet with email address **PRINTED**.

READ pp.105-106

Factoring WS #(3,4)def, 6acd, 9, 10, 11gijo, 12bg [13]

Work Ahead: p. 132 #1, 4ac, 6cfg, 7

Optional Sheet: Common Factoring

Today's Learning Goal(s):

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

a) factor polynomials with up to 4 terms.

Date: _____
(Every lesson)

3. Factor.

- a) $4y^2 - 20y - 56$ b) $3m^2 + 18m + 24$ c) $4x^2 + 4x - 48$
d) $10x^2 + 80x + 120$ e) $5am^2 - 40am + 35a$ f) $7c^2d - 35cd^2 + 42d^3$

4. Factor.

- a) $15a^3 + 90a^2b + 135ab^2$ b) $6p^3 + 6p^2q - 180pq^2$ c) $7x^3y^3 - 63x^2y^2 + 140xy$
d) $3m^2n^2 + 36mn^2 + 96n^2$ e) $4a^3 - 4a^2b - 48ab^2$ f) $5x^3y^2 + 10x^2y^3 - 120xy^4$

5. Factor.

- a) $x^4 + 7x^2 + 10$ b) $a^4 + 9a^2b^2 + 14b^4$ c) $m^4 + 13m^2 + 36$
d) $2b^4 + 16b^2 + 30$ e) $3c^4 + 24c^2 + 21$ f) $5x^4 + 25x^2y^2 + 30y^4$

6. Factor.

- a) $(x + y)^2 + 9(x + y) - 10$ b) $(p - 2q)^2 - 11(p - 2q) + 24$
c) $(3y - 4)^2 - 2(3y - 4) - 63$ d) $(x^2 + 4x)^2 + 8(x^2 + 4x) + 15$
e) $(2m - n)^2 - (2m - n)p - 20p^2$

9. Factor.

- a) $32x^2 - 20x + 3$ b) $24s^2 - 13s - 2$ c) $4a^2 + 19a + 21$
d) $4x^2 + 21xy - 18y^2$ e) $10a^2 - 19ab - 15b^2$ f) $21x^2 + 25xy - 4y^2$

10. Factor.

- a) $21x^2 + 17x - 30$ b) $72x^2 + 11x - 6$ c) $15x^2 - 28x - 32$
d) $48x^2 - 22xy - 15y^2$ e) $24c^2 + 26cd - 15d^2$ f) $40y^2 + yz - 6z^2$

11. Factor.

- a) $8m^2 - 72$ b) $6x^2 - 150$ c) $20x^2 - 5y^2$ d) $18b^2 - 128$
e) $12a^2 - 75$ f) $18p^2 - 98$ g) $80s^2 - 405$ h) $12p^2 - 363$
i) $12x^3 - 27x$ j) $32m^3 - 98m$ k) $63a^2b - 28b$ l) $75s^2t^2 - 27t^2$
m) $(x - y)^2 - z^2$ n) $(2a + b)^2 - 81$ o) $81a^2 - (3a + b)^2$ p) $4(2x - y)^2 - 25z^2$

12. Factor.

- a) $(x + 2)^2 - (x + 7)^2$ b) $(5m - 2)^2 - (3m - 4)^2$ c) $(2a + 3)^2 - (2a - 3)^2$
d) $(3y + 8z)^2 - (3y - 8z)^2$ e) $(3p - 7)^2 - (8p + 2)^2$ f) $(2x - 1)^2 - (7x + 4)^2$
g) $x^4 - 13x^2 + 36$ h) $a^4 - 17a^2 + 16$ i) $y^4 - 5y^2 + 36$

13. Factor, if possible.

- a) $8d^2 - 32e^2$ b) $25m^2 - \frac{1}{4}n^2$ c) $18x^2y^2 - 50y^4$ d) $10a^2 - 7b^2$
e) $25s^2 + 49t^2$ f) $p^2 - \frac{1}{9}q^2$ g) $5x^4 - 80$ h) $\frac{x^2}{16} - \frac{y^2}{49}$

Optional Sheet: Common Factoring

1. Factor.

- a) $5y - 10$ b) $8m + 24$ c) $6 + 12x^2$ d) $35a + 10a^2$
 e) $49b^2 - 7b^3$ f) $35z^2 - 14z^6$ g) $45d^5 - 36d$ h) $52s^3 - 13s^2$

2. Factor.

- a) $3x^2 + 12x - 6$ b) $3x^2 + 5x^3 + x$ c) $a^3 + 9a^2 - 3a$
 d) $3x^2 + 6x^3 - 12x$ e) $16y^2 - 32y + 24y^3$ f) $8x^2y - 32xy^2 + 16x^2y^2$
 g) $14m^2n - 21mn^2$ h) $9a^2b^3 - 12a^2b^2$ i) $27m^3n^2 - 15m^2n^3$

3. Factor.

- a) $3x(a+b) + 7(a+b)$ b) $m(2x-y) - 5(2x-y)$
 c) $5x(a+3b) - 9y(a+3b)$ d) $7w(w+x) - 10(x+w)$
 e) $3x^2(x-7) + 2x(x-7) + 5(x-7)$ f) $2m(a-b) - 3n(b-a) - 7(a-b)$
 g) $6a(b-a) + 4b(a-b) - 3(b-a)$ h) $2x^2(3a-2c) + 5x(3a-2c) - 9(2c-3a)$

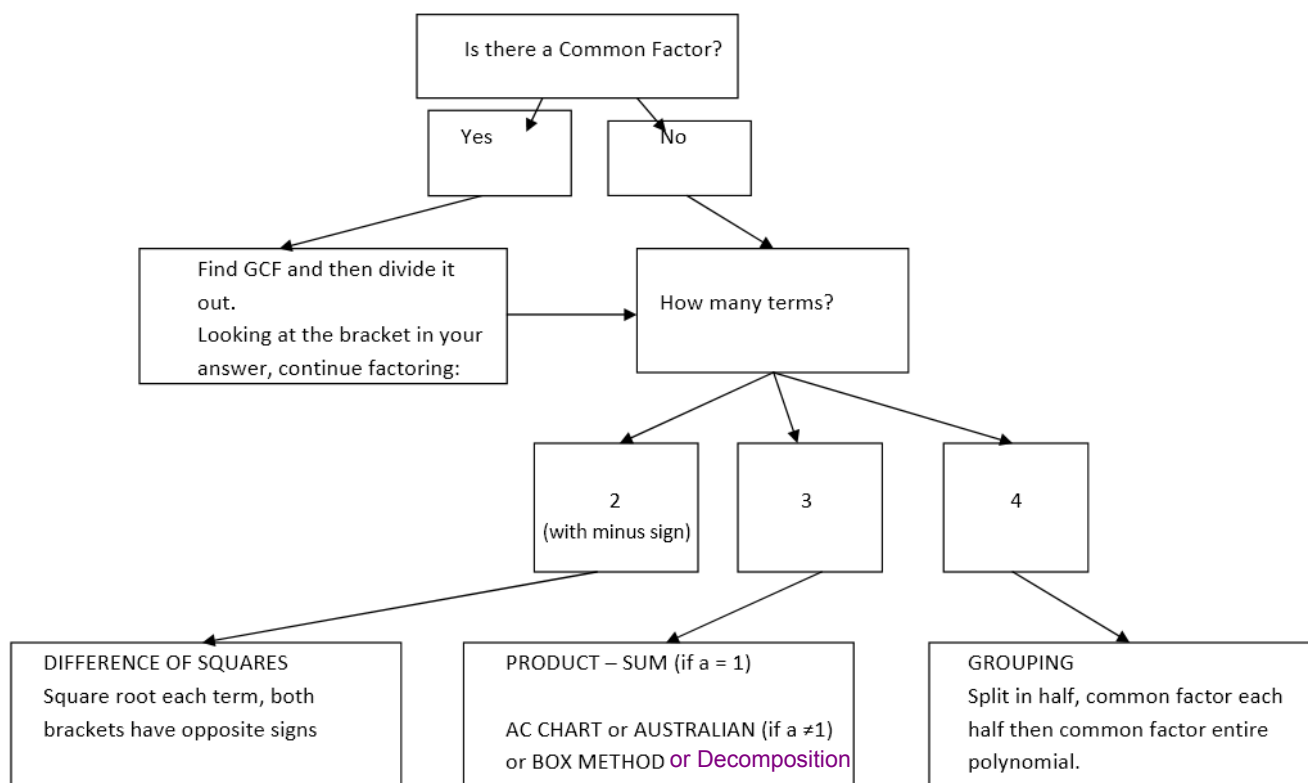
4. Factor, by grouping.

- a) $x^2 + 3x + xy + 3y$ b) $x^3 + x^2 + x + 1$ c) $5am + a + 10cm + 2c$
 d) $3x^2 - 6xy + 5x - 10y$ e) $5m^2 + 10mn - 3m - 6n$ f) $2a^2 - 6ac - 3a + 9c$
 g) $bc - ab + b^2 - ac$ h) $x^2 + y - xy - x$ i) $2mx + 4x + 2my + 4y$
 j) $3mxy - 6mx - 3nxy + 6nx$

5. Fill in the blanks.

- a) $x^2 + 9x + 20 = (x+5)(\underline{\hspace{2cm}})$ b) $x^2 + 5x + 6 = (x+3)(\underline{\hspace{2cm}})$
 c) $x^2 - 7x + 12 = (x-4)(\underline{\hspace{2cm}})$ d) $m^2 - 3m - 18 = (\underline{\hspace{2cm}})(m-6)$
 e) $y^2 + 5y - 14 = (y+7)(\underline{\hspace{2cm}})$ f) $t^2 - 2t - 24 = (t-6)(\underline{\hspace{2cm}})$
 g) $s^2 - 8s + 16 = (\underline{\hspace{2cm}})(s-4)$ h) $w^2 + 10w + 25 = (w+5)(\underline{\hspace{2cm}})$
 i) $n^2 + 3n - 40 = (\underline{\hspace{2cm}})(n+8)$ j) $x^2 - x - 42 = (x+6)(\underline{\hspace{2cm}})$
 k) $y^2 - y - 2 = (y+1)(\underline{\hspace{2cm}})$ l) $x^2 - 10x + 16 = (x-2)(\underline{\hspace{2cm}})$

Factoring Mind-Map



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Factoring WS #(3,4)def, 6acd, 9, 10, 11gijo, 12bg [13]

Work Ahead: p. 132 #1, 4ac, 6cfg, 7