Dear Parents / Students

Due to the unprecedented situation, Knowledgeplus Training center is mobilized and will keep accompanying and supporting our students through this difficult time. Our Staff will be continuously, sending notes and exercises on a weekly basis through what's app and email. Students are requested to copy the notes and do the exercises on their copybooks. The answers to the questions below will be made available on our website on knowledgeplus.mu/support.php. Please note that these are extra work and notes that we are providing our students and all classes will be replaced during the winter vacation. We thank you for your trust and are convinced that, together, we will overcome these troubled times.

Knowledgeplus Training Center

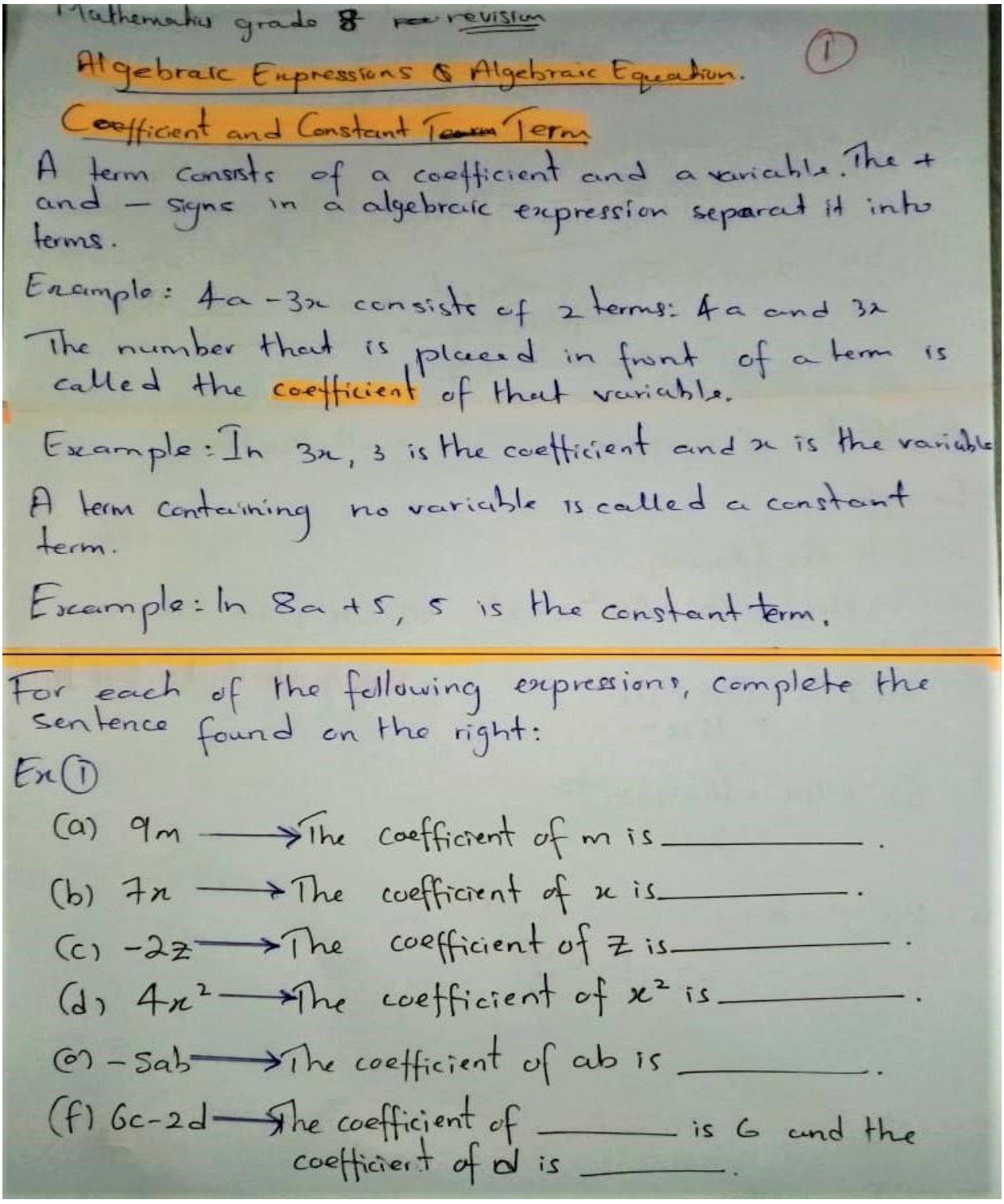
Mathematics

Garde 9

Week 2

Notes and Exercise

Note:(All the Notes, Examples and Exercise are on the photos



Mathematics grade 8 revision

(1)

Algebraic Expressions & Algebraic Equation.

Coefficient and Constant Term

A term consists of a coefficient and a variable. The + and − signs in a algebraic expression separat it into terms.

Example: $4a - 3x$ consists of 2 terms: $4a$ and $3x$

The number that is placed in front of a term is called the coefficient of that variable.

Example: In $3x$, 3 is the coefficient and x is the variable

A term containing no variable is called a constant term.

Example: In $8a + 5$, 5 is the constant term.

For each of the following expressions, complete the sentence found on the right:

Ex(1)

(a) $9m$ ⟶ The coefficient of m is _____.

(b) $7x$ ⟶ The coefficient of x is _____.

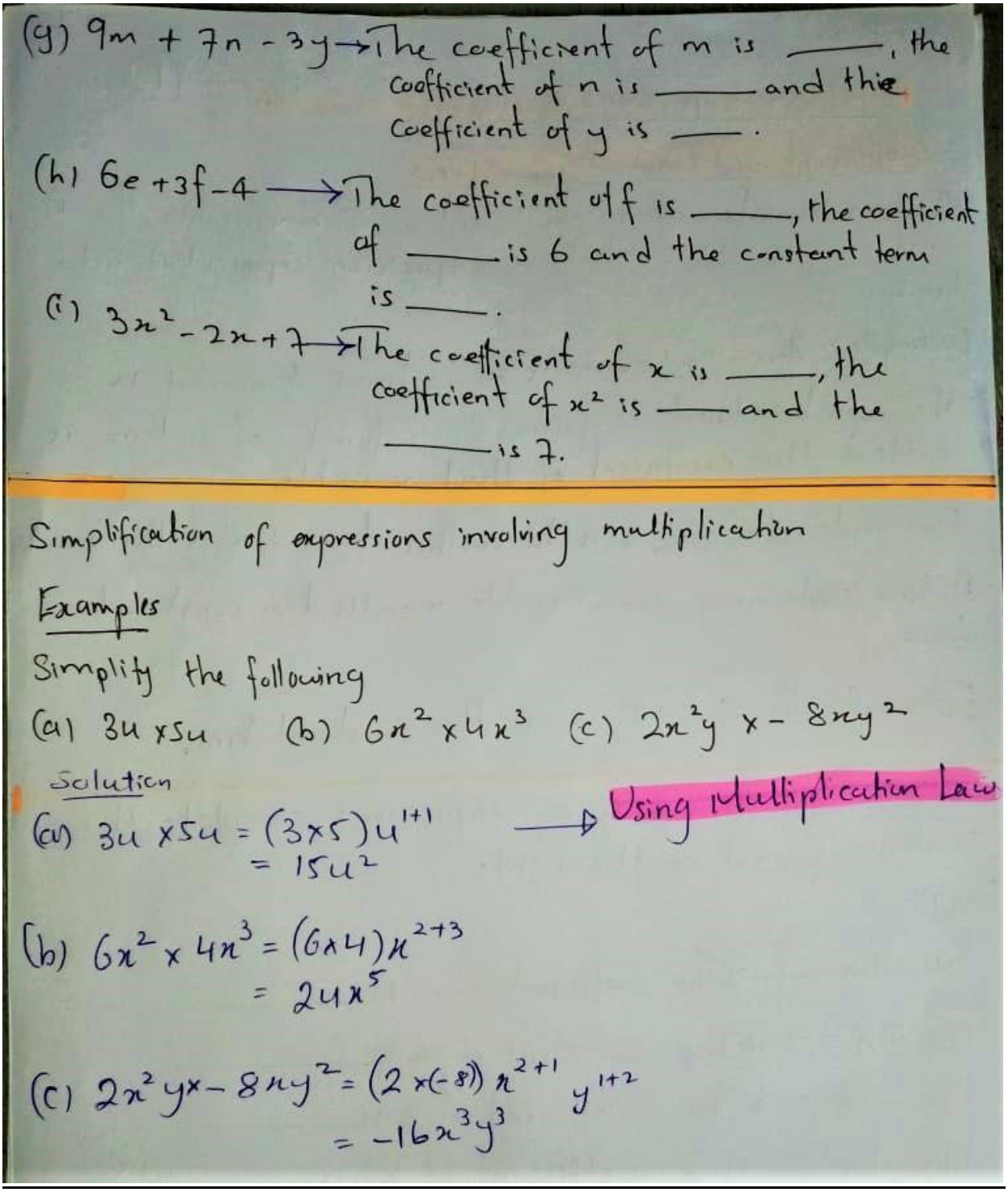
(c) $-2z$ ⟶ The coefficient of z is _____.

(d) $4x^2$ ⟶ The coefficient of x^2 is _____.

(e) $-5ab$ ⟶ The coefficient of ab is _____.

(f) $6c - 2d$ ⟶ The coefficient of _____ is 6 and the coefficient of d is _____.

Note:(Please copy all the Notes, Examples and Exercise on your copy book).



(g) $9m + 7n - 3y$ → The coefficient of m is ____, the coefficient of n is ____ and the coefficient of y is ____.

(h) $6e + 3f - 4$ → The coefficient of f is ____, the coefficient of ____ is 6 and the constant term is ____.

(i) $3x^2 - 2x + 7$ → The coefficient of x is ____, the coefficient of x^2 is ____ and the ____ is 7.

Simplification of expressions involving multiplication

Examples

Simplify the following

(a) $3u \times 5u$ (b) $6x^2 \times 4x^3$ (c) $2x^2y \times -8xy^2$

Solution

(a) $3u \times 5u = (3 \times 5)u^{1+1}$ → Using Multiplication Law

$= 15u^2$

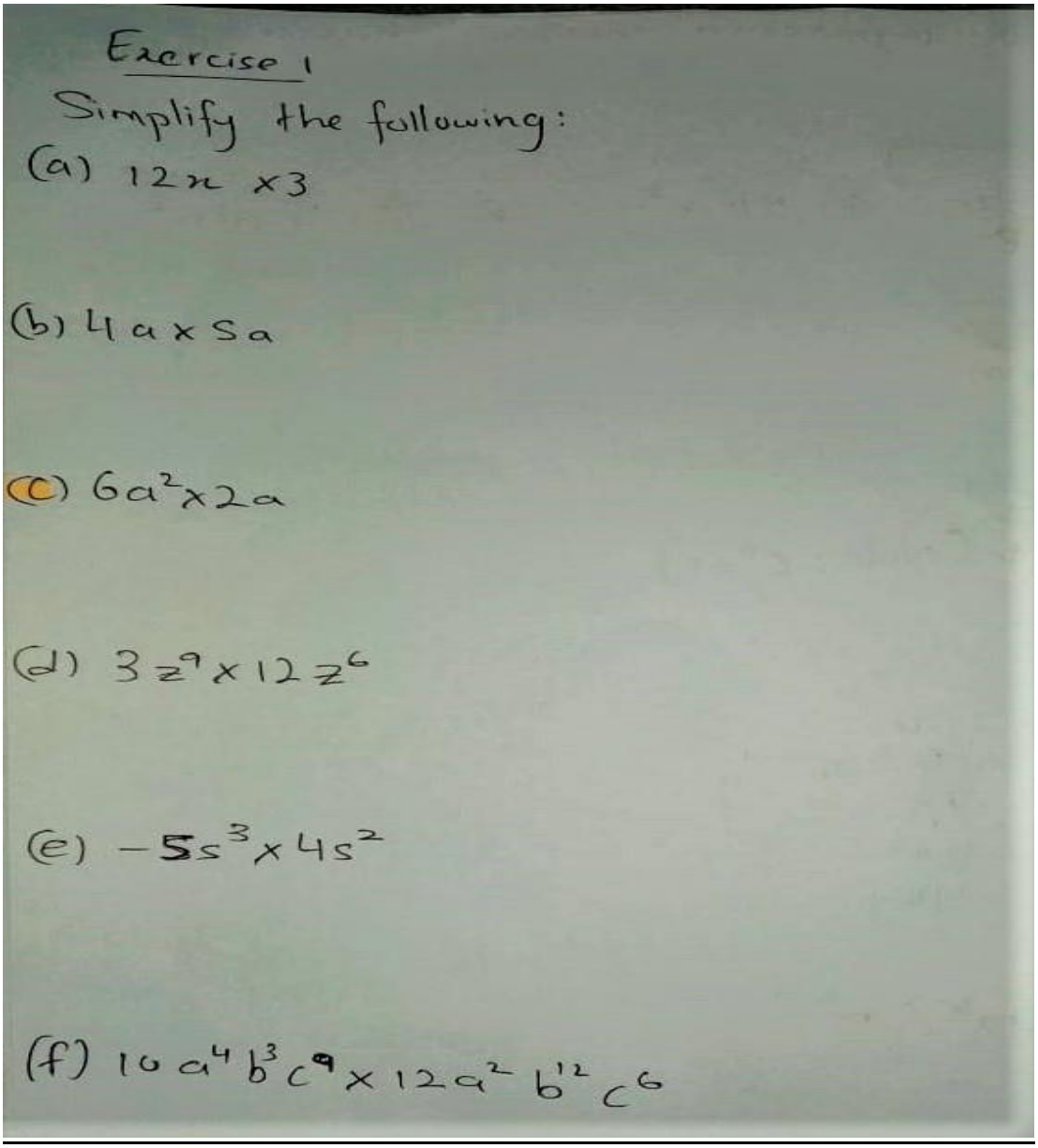
(b) $6x^2 \times 4x^3 = (6 \times 4)x^{2+3}$

$= 24x^5$

(c) $2x^2y \times -8xy^2 = (2 \times (-8))x^{2+1}y^{1+2}$

$= -16x^3y^3$

Note:(Please copy all the Notes, Examples and Exercise on your copy book).



Exercise 1

Simplify the following:

(a) $12x \times 3$

(b) $4a \times 5a$

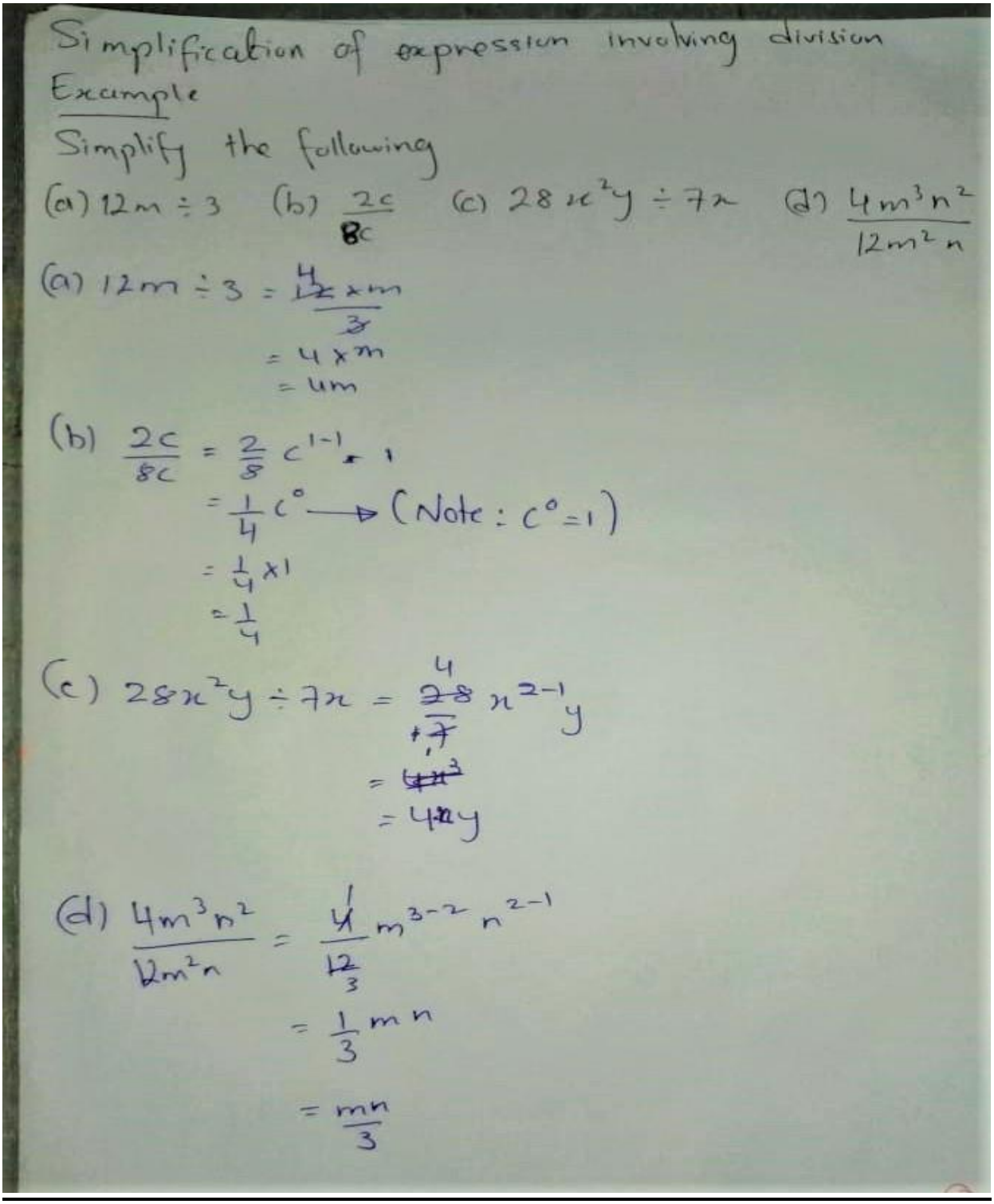
(c) $6a^2 \times 2a$

(d) $3z^9 \times 12z^6$

(e) $-5s^3 \times 4s^2$

(f) $10a^4b^3c^9 \times 12a^2b^{12}c^6$

Note:(Please copy all the Notes, Examples and Exercise on your copy book).



Simplification of expression involving division

Example

Simplify the following

(a) $12m \div 3$ (b) $\frac{2c}{8c}$ (c) $28x^2y \div 7x$ (d) $\frac{4m^3n^2}{12m^2n}$

(a) $12m \div 3 = \frac{4}{\cancel{12}\cancel{3} \times m}$

$= 4 \times m$

$= 4m$

(b) $\frac{2c}{8c} = \frac{2}{8} c^{1-1}$, 1

$= \frac{1}{4} c^0 \longrightarrow$ (Note: $c^0 = 1$)

$= \frac{1}{4} \times 1$

$= \frac{1}{4}$

(c) $28x^2y \div 7x = \frac{\overset{4}{\cancel{28}}}{\cancel{7}} x^{2-1} y$

$= \cancel{4x^3}$

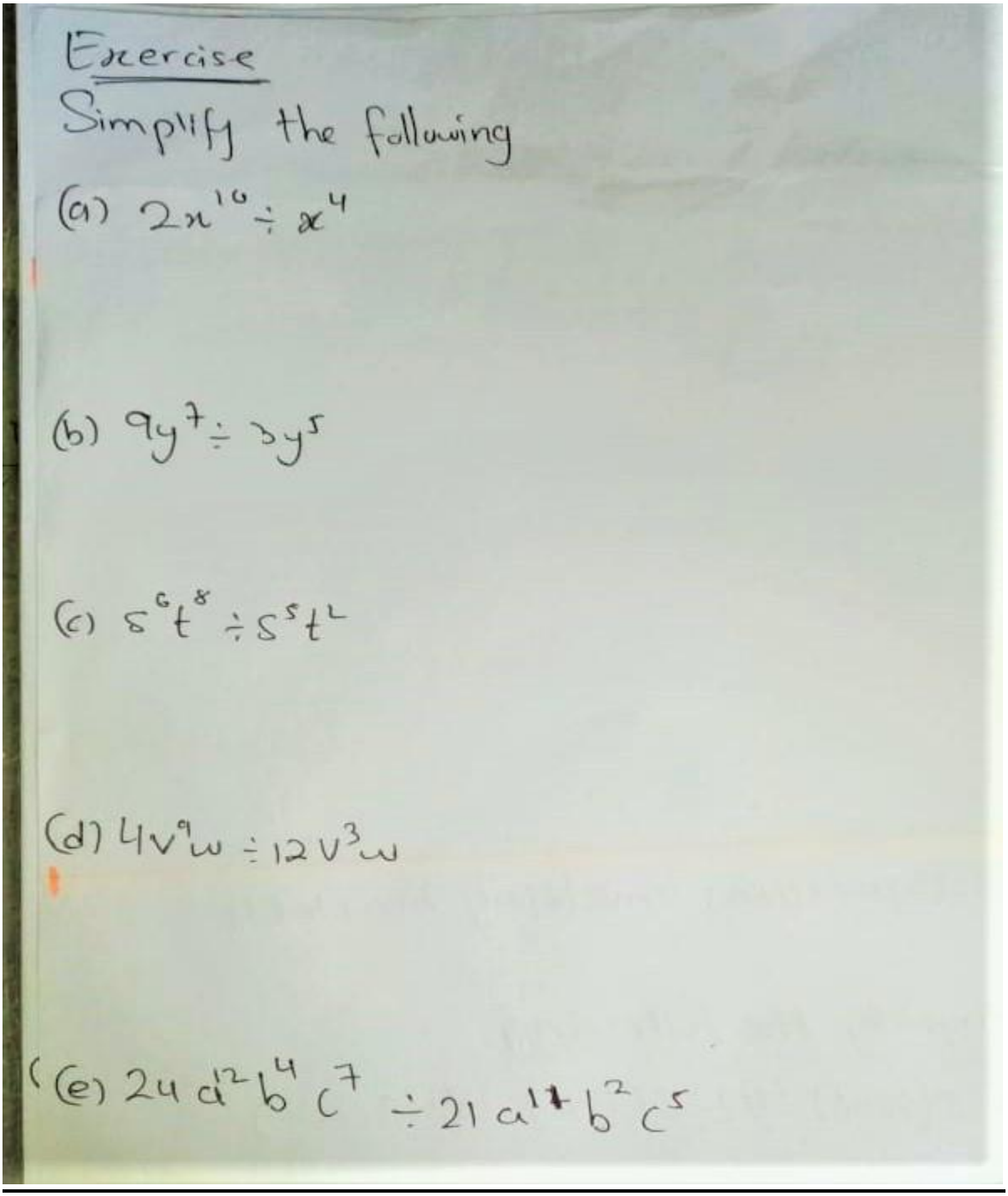
$= 4xy$

(d) $\frac{4m^3n^2}{12m^2n} = \frac{\overset{1}{\cancel{4}}}{\cancel{12}_3} m^{3-2} n^{2-1}$

$= \frac{1}{3} mn$

$= \frac{mn}{3}$

Note:(Please copy all the Notes, Examples and Exercise on your copy book).



Exercise

Simplify the following

(a) $2x^{10} \div x^4$

(b) $9y^7 \div 3y^5$

(c) $8^6 t^8 \div 8^5 t^2$

(d) $4v^9 w \div 12 v^3 w$

(e) $24 a^{12} b^4 c^7 \div 21 a^{11} b^2 c^5$

Note:(Please copy all the Notes, Examples and Exercise on your copy book).

(f) $\frac{32x^2y^8}{x^5y^4}$

(g) $\frac{3u^{15}v^9}{9u^6v^9}$

Simplification of expressions involving brackets

Example

Expand and simplify the following.

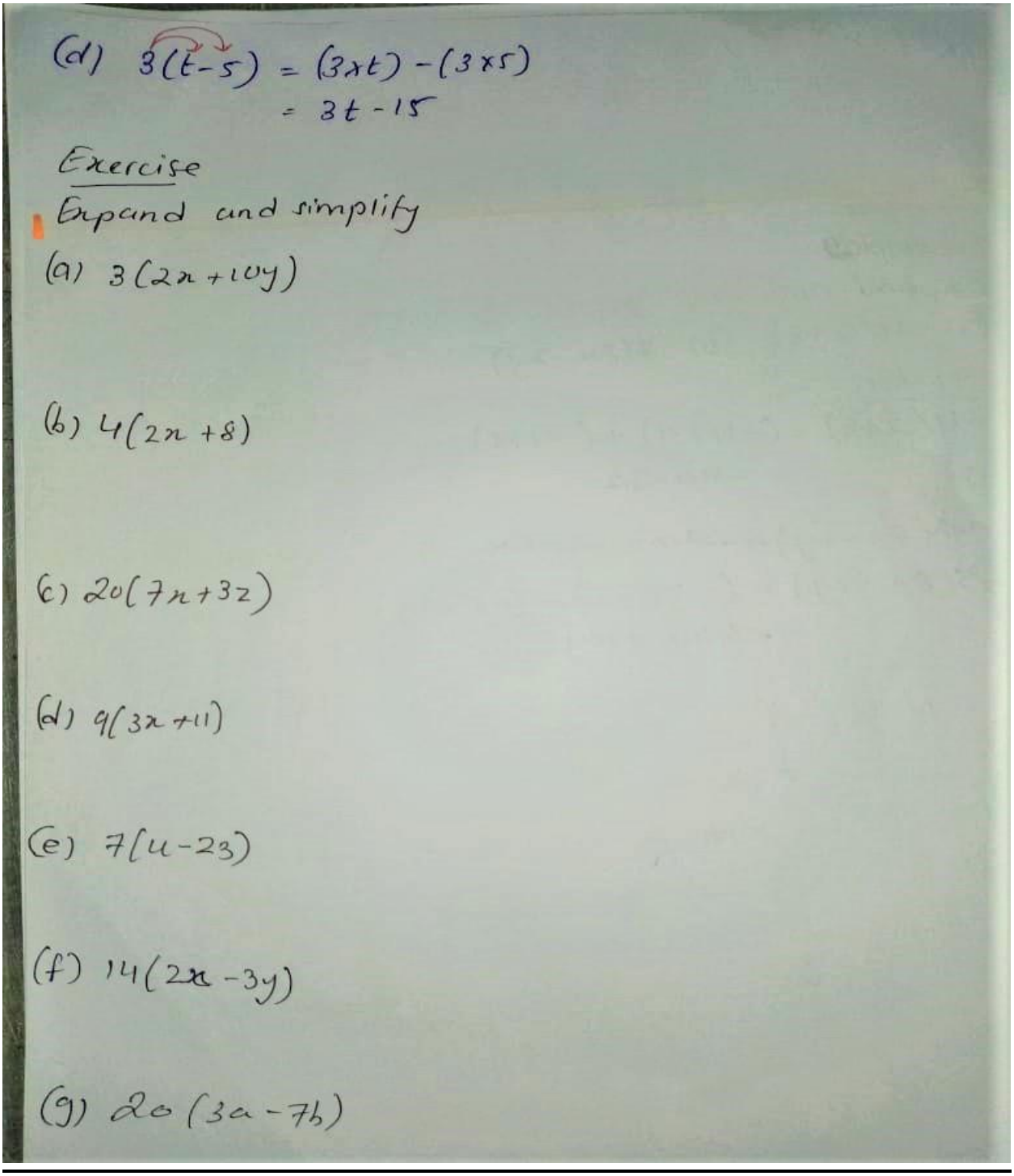
(a) $9(x+y)$ (b) $5(x+6)$ (c) $2(5-12)$ (d) $3(t-5)$

(a) $9(x+y) = (9\times x)+(9\times y)$
$= 9x+9y$

(b) $5(x+6) = (5\times x)+(5\times 6)$
$= 5x+30$

(c) $2(5-12) = 2\times 5-(2\times 12)$
$= 25-24$

Note:(Please copy all the Notes, Examples and Exercise on your copy book).



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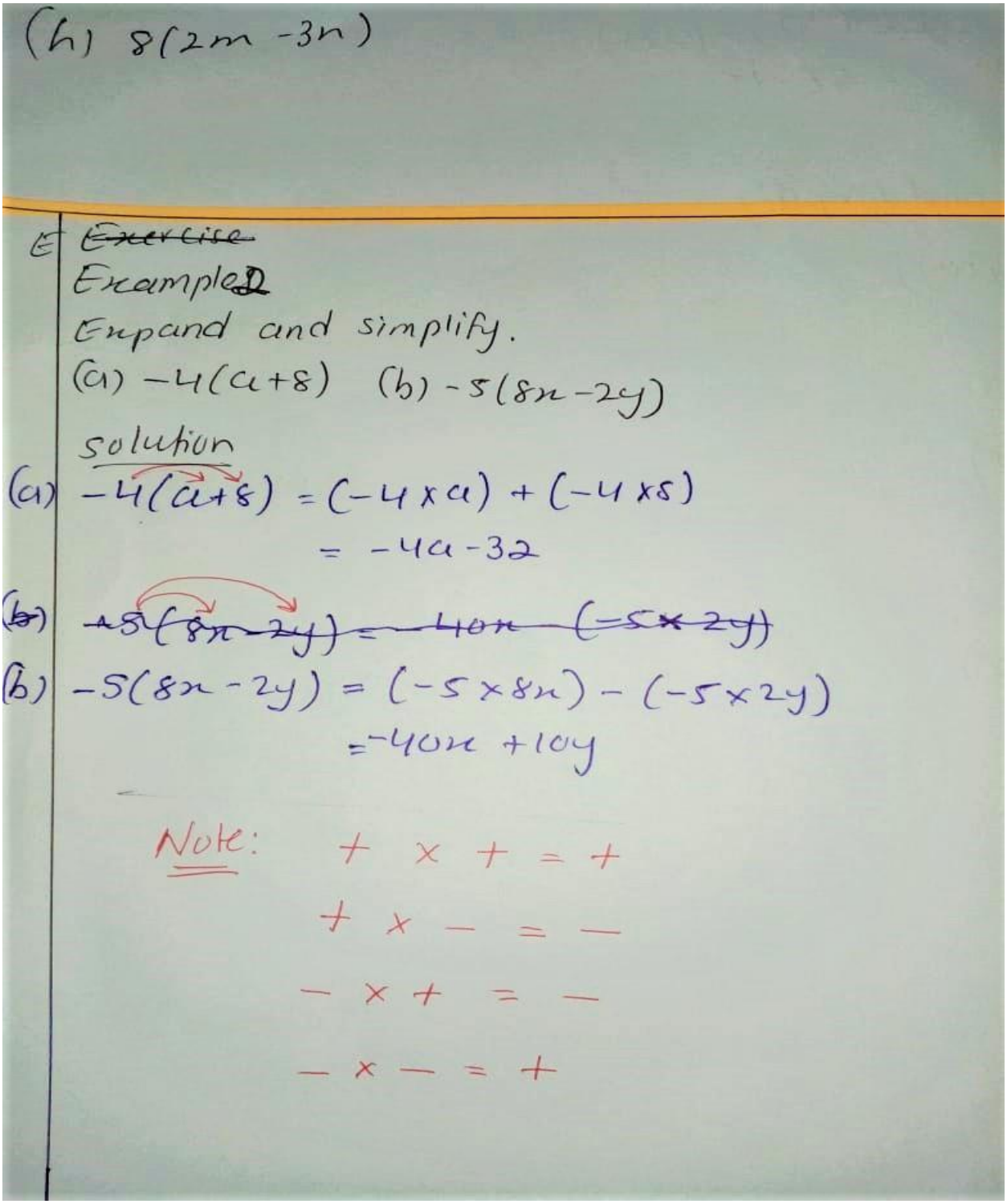


Note:(Please copy all the Notes, Examples and Exercise on your copy book).

Exercise 2

Expand and simplify

(a) $-7(d+9)$

(b) $-2(3x+2y)$

(c) $-3(2ab+4ad)$

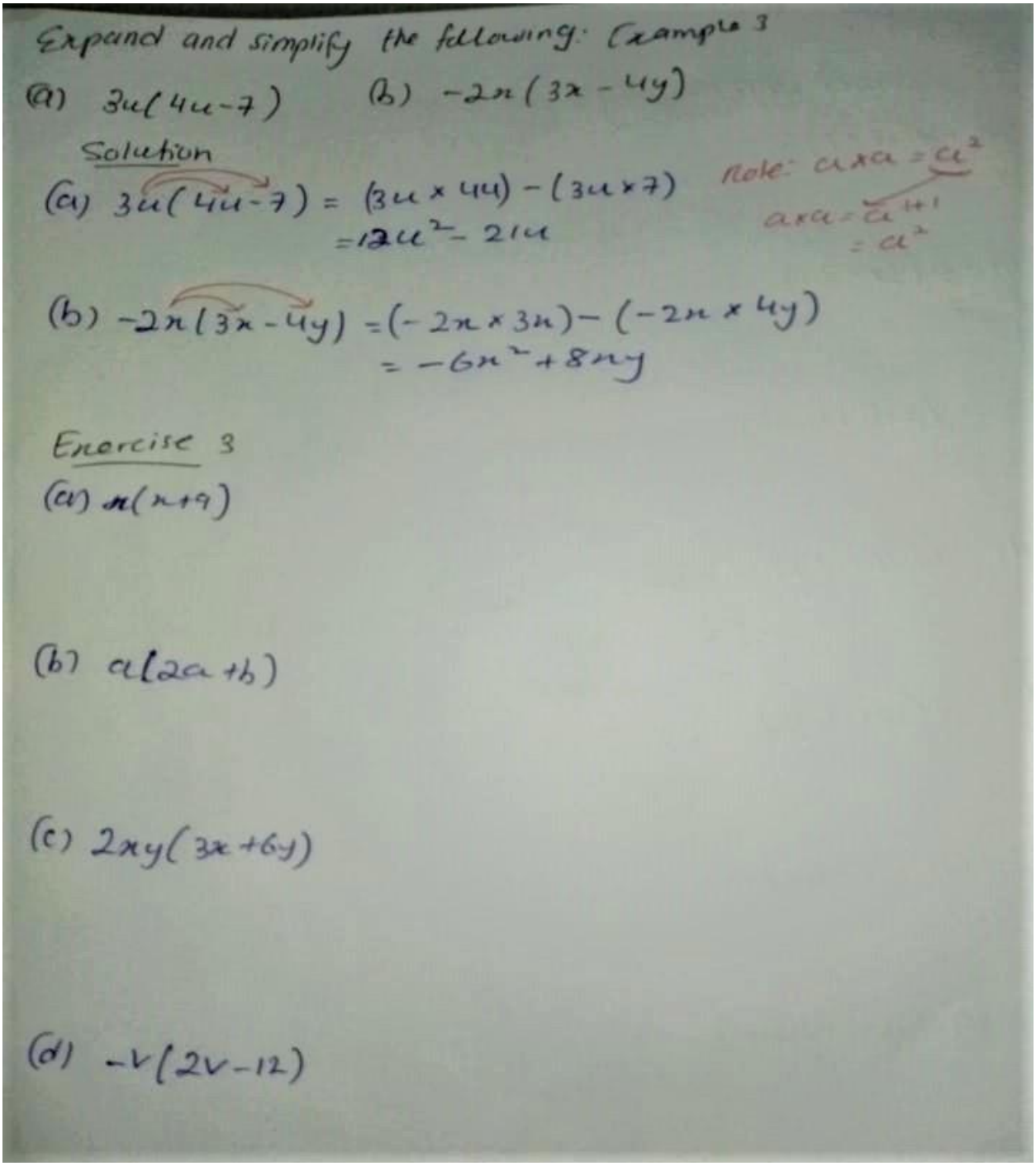
(d) $-6(16x+y)$

(e) $-5(10e+9f)$

(f) $-17(3u+6v)$

(g) $-12(8uv-10uw)$

Note:(Please copy all the Notes, Examples and Exercise on your copy book).



Expand and simplify the following: Example 3

(a) $3u(4u-7)$ (b) $-2x(3x-4y)$

Solution

(a) $3u(4u-7) = (3u \times 4u) - (3u \times 7)$

$= 12u^2 - 21u$

Note: $a \times a = a^2$

$a \times a = a^{1+1}$

$= a^2$

(b) $-2x(3x-4y) = (-2x \times 3x) - (-2x \times 4y)$

$= -6x^2 + 8xy$

Exercise 3

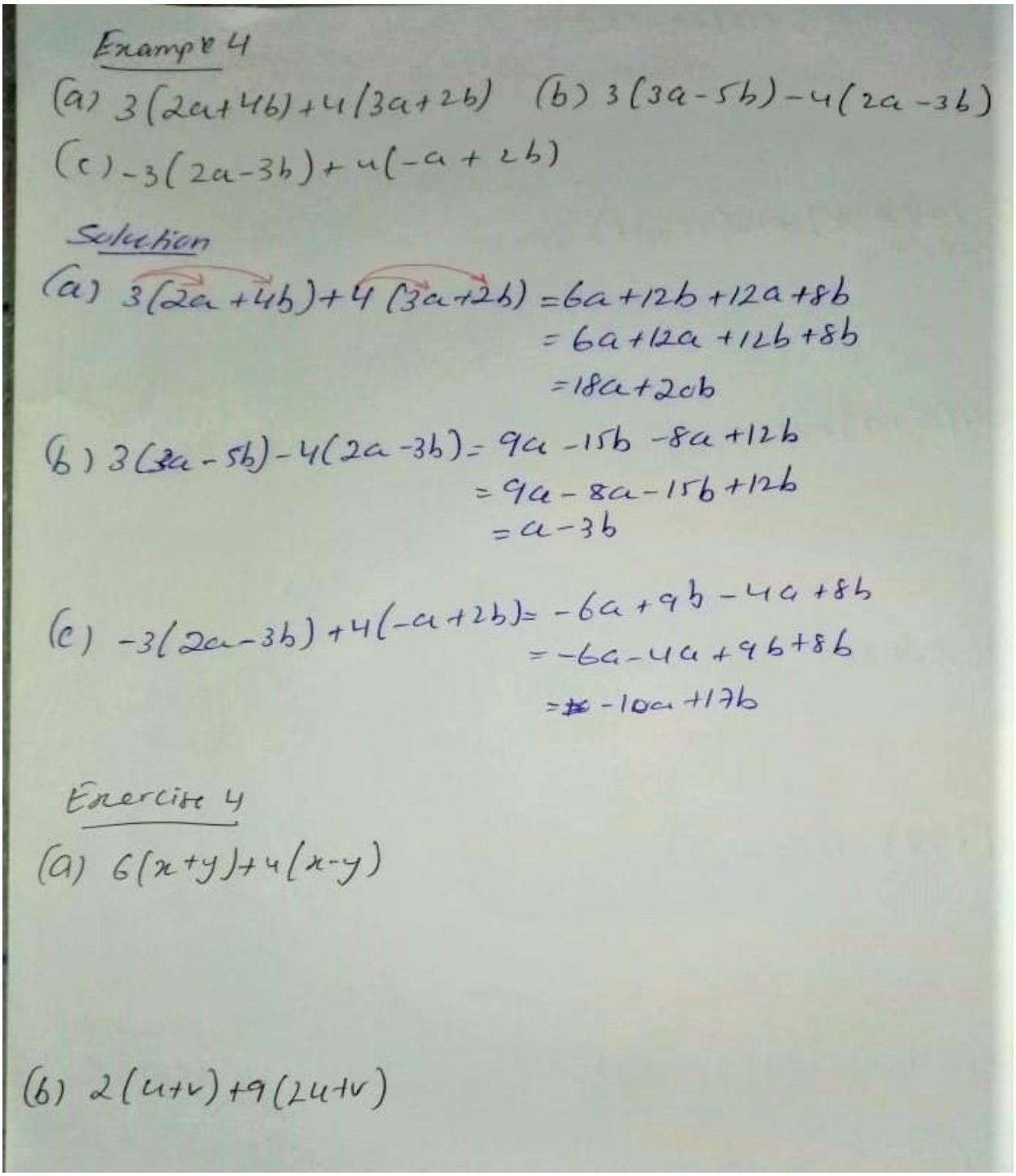
(a) $x(x+9)$

(b) $a(2a+b)$

(c) $2xy(3x+6y)$

(d) $-v(2v-12)$

Note:(Please copy all the Notes, Examples and Exercise on your copy book).



Example 4

(a) $3(2a+4b)+4(3a+2b)$ (b) $3(3a-5b)-4(2a-3b)$

(c) $-3(2a-3b)+4(-a+2b)$

Solution

(a) $3(2a+4b)+4(3a+2b) = 6a+12b+12a+8b$

$= 6a+12a+12b+8b$

$= 18a+20b$

(b) $3(3a-5b)-4(2a-3b) = 9a-15b-8a+12b$

$= 9a-8a-15b+12b$

$= a-3b$

(c) $-3(2a-3b)+4(-a+2b) = -6a+9b-4a+8b$

$= -6a-4a+9b+8b$

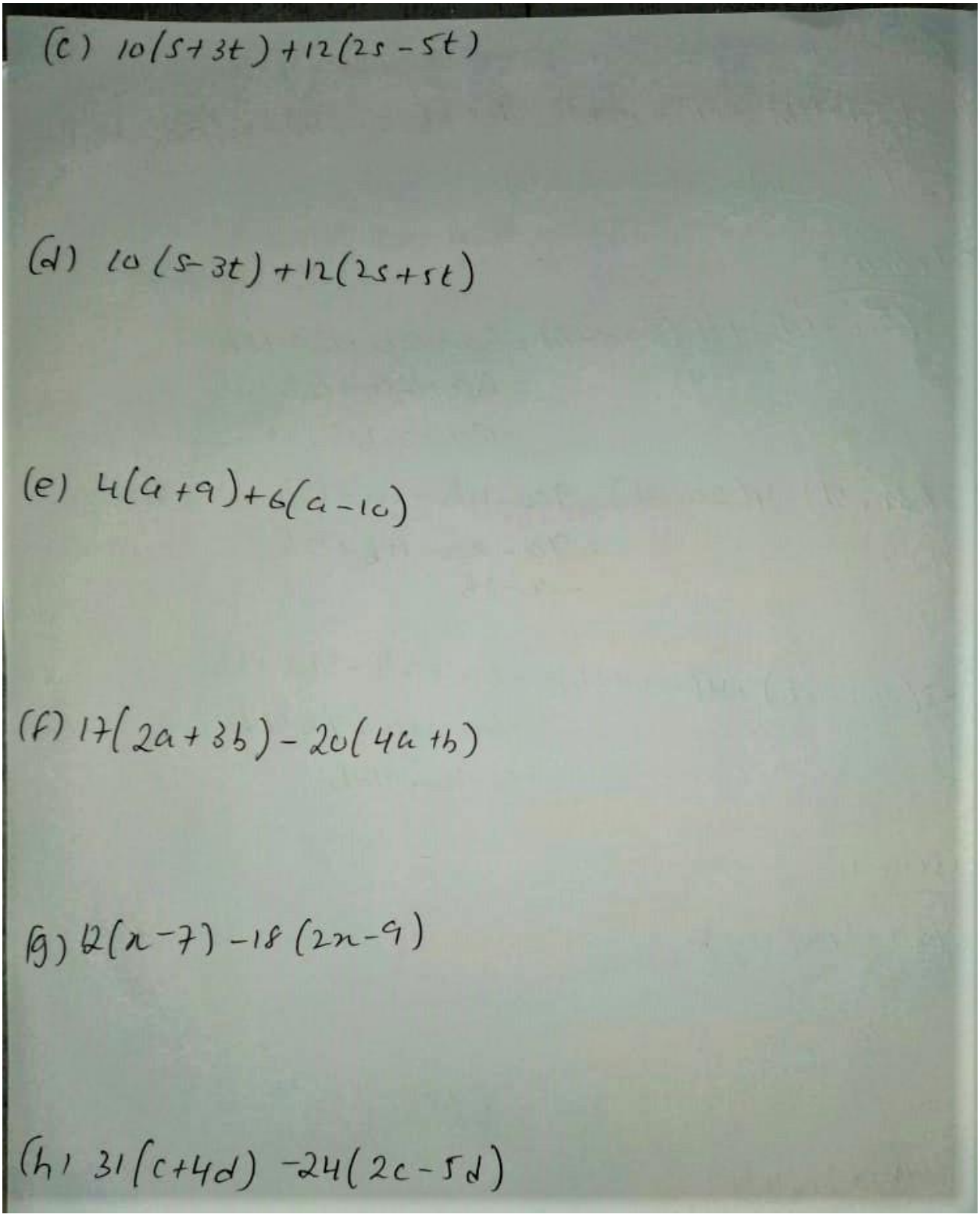
$= -10a+17b$

Exercise 4

(a) $6(x+y)+4(x-y)$

(b) $2(u+v)+9(2u+v)$

Note:(Please copy all the Notes, Examples and Exercise on your copy book).



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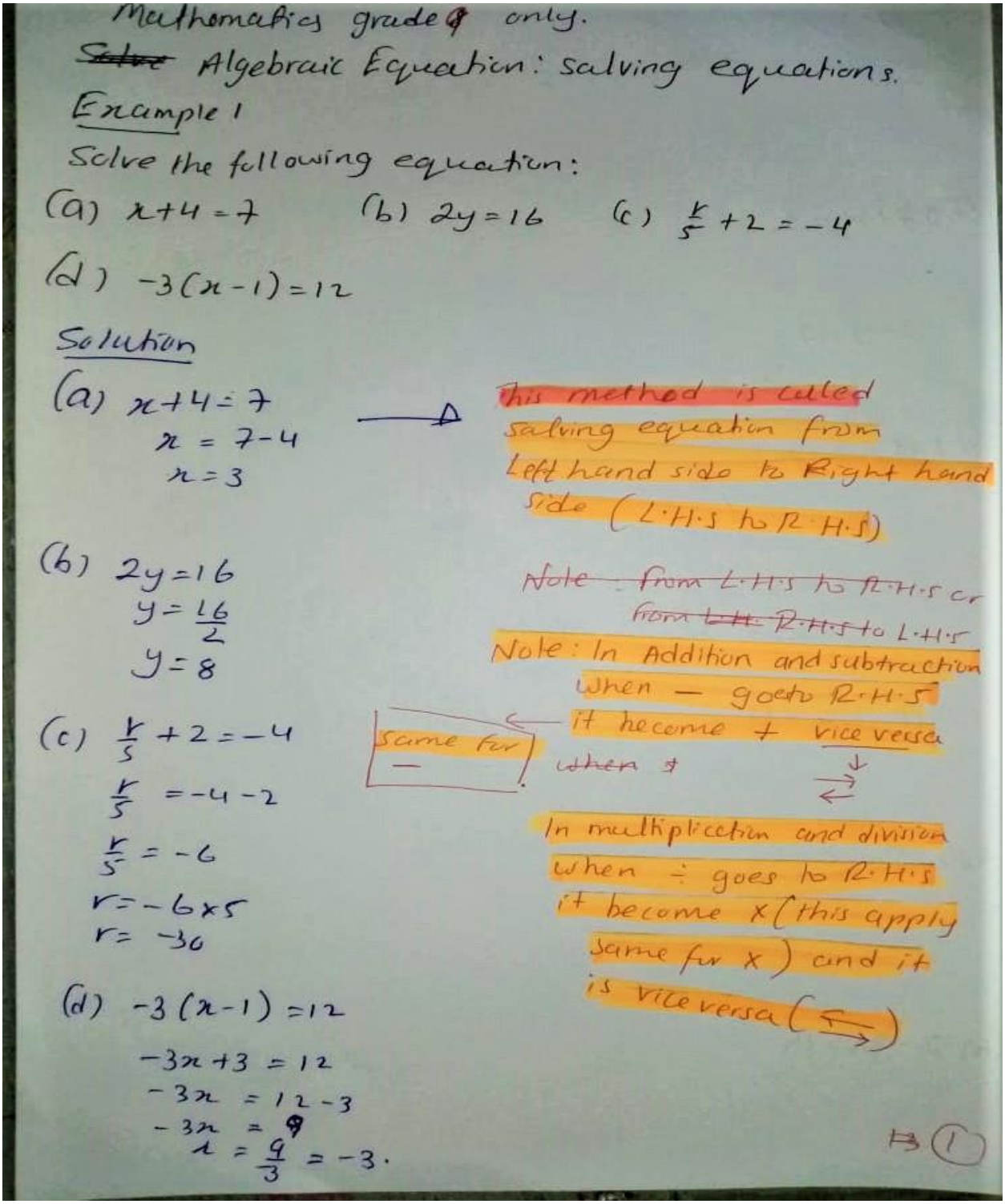


Mathematics grade 9 only.

~~Solve~~ Algebraic Equation: salving equations.

Example 1

Solve the following equation:

(a) $x+4=7$ (b) $2y=16$ (c) $\frac{r}{5}+2=-4$

(d) $-3(x-1)=12$

Solution

(a) $x+4=7$

$x=7-4$

$x=3$

This method is called salving equation from Left hand side to Right hand side (L·H·S to R·H·S)

(b) $2y=16$

$y=\frac{16}{2}$

$y=8$

~~Note from L·H·S to R·H·S or from R·H·S to L·H·S~~

Note: In Addition and subtraction when − goes to R·H·S it become + vice versa

same for − when +

(c) $\frac{r}{5}+2=-4$

$\frac{r}{5}=-4-2$

$\frac{r}{5}=-6$

$r=-6\times5$

$r=-30$

In multiplication and division when ÷ goes to R·H·S it become × (this apply same for ×) and it is vice versa

(d) $-3(x-1)=12$

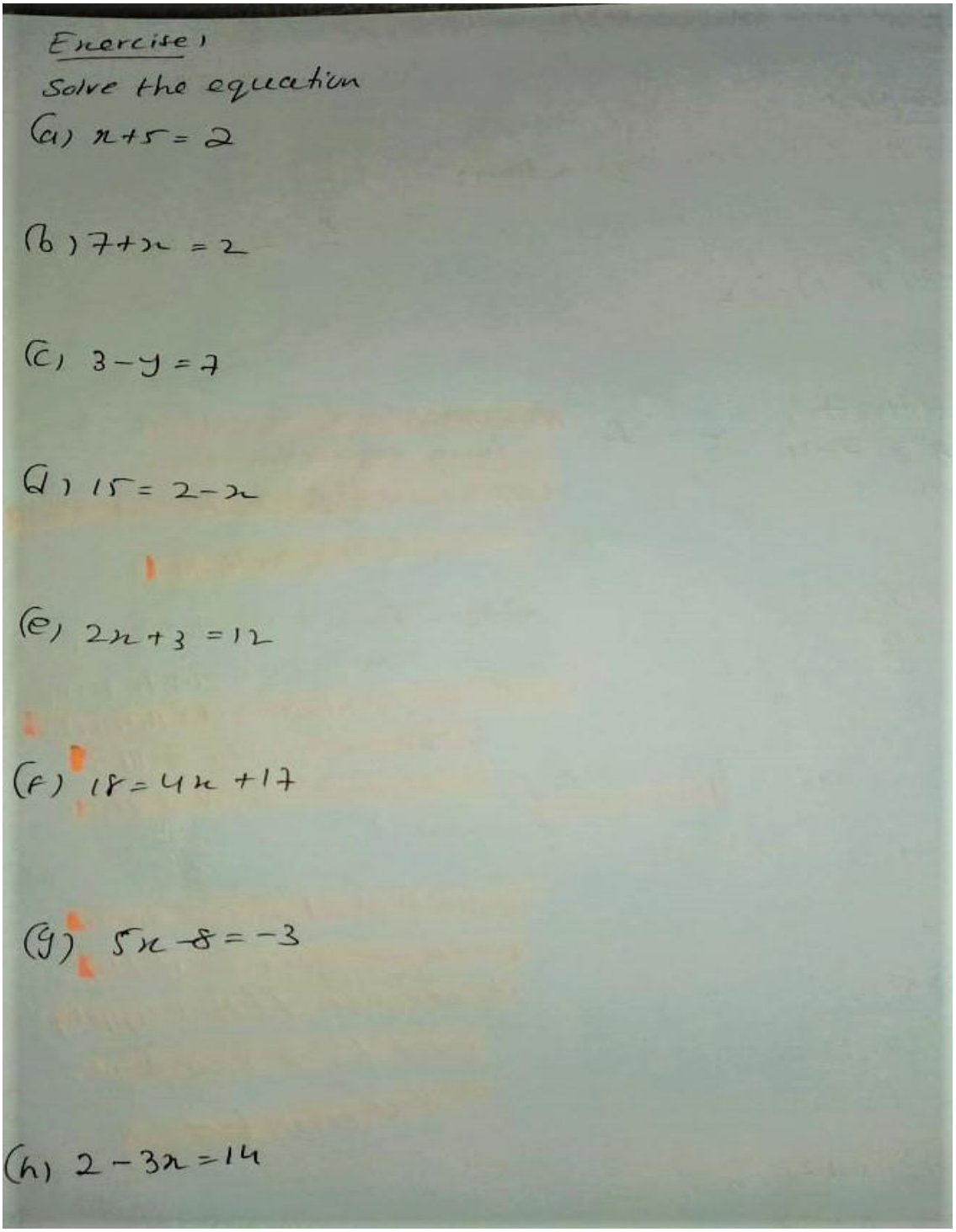
$-3x+3=12$

$-3x=12-3$

$-3x=9$

$x=\frac{9}{3}=-3.$

Note:(Please copy all the Notes, Examples and Exercise on your copy book).



Exercise 1

Solve the equation

(a) $x+5=2$

(b) $7+x=2$

(c) $3-y=7$

(d) $15=2-x$

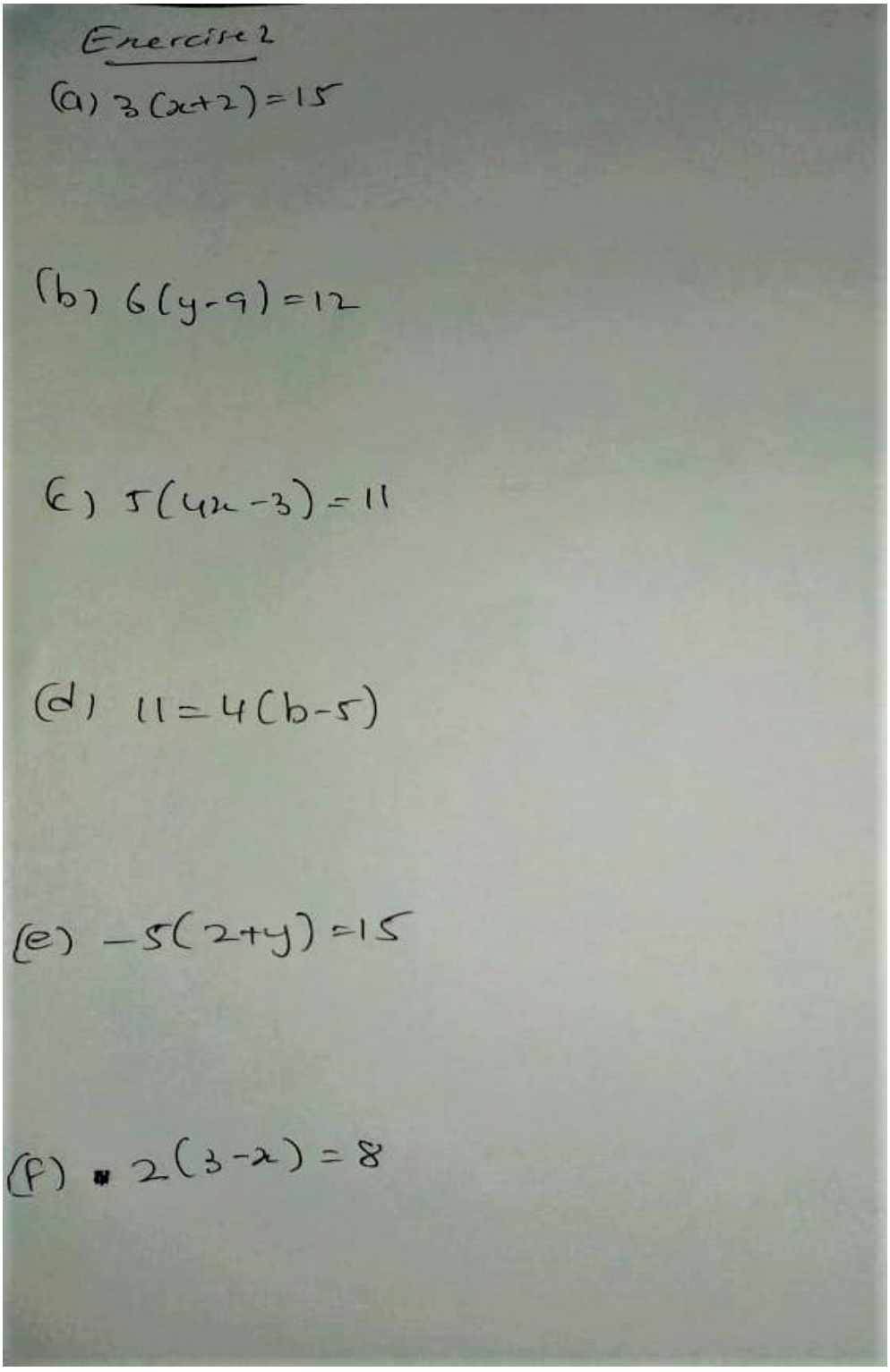
(e) $2x+3=12$

(f) $18=4x+17$

(g) $5x-8=-3$

(h) $2-3x=14$

Note:(Please copy all the Notes, Examples and Exercise on your copy book).



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