

Mount Kenya



University

UNIVERSITY EXAMINATION 2014/2015

SCHOOL OF EDUCATION
DEPARTMENT OF EARLY CHILDHOOD STUDIES

BACHELOR OF EDUCATION IN EARLY CHILDHOOD STUDIES
SCHOOL BASED

UNIT CODE: BEC2205

UNIT TITLE: PRIMARY MATHEMATICS II

DATE: APRIL

MAIN EXAM

TIME: 2 HOURS

INSTRUCTIONS ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS

1. a) The length of a classroom is xm and the width is $2m$ shorter. Find the total length round the classroom. (3 Marks)

b) Remove the brackets and simplify ;

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

(3 Marks)

ii) $2(3x+y) + 4(x+2y) - 3(2x-3y)$

(3 Marks)

c) Solve the following equations;

i) $x + 3y = 34$

$x = 0$

(3 Marks)

*ii)

$3x + 5 = 35 = 35 - 5 = 30$
 $- 30 = 30$

(5 Marks)

d) Solve the following pair of simultaneous equations.

1

$y = 1$

$\frac{0}{y} + \frac{3}{1} = 3$
 $0 + \frac{3}{1} = 3$

2200
2260
2460
246

$$y = 4$$

$$x = 2$$

$$3x + y = 12$$

$$2x - 3y = 8$$

$$6x + 2y = 24$$

$$6x - 9y = 24$$

$$-7y = -2$$

$$y = \frac{2}{7}$$

$$2x - 8 = 8$$

e) solve the inequality give and all integral values; $3x - 2 < 10 + x < 2 + 5x$ (3 Marks)

f) Factorise; i) $\frac{3x^2 - 48y^2}{5}$ (3 Marks)

ii) $y^2 - 6y + 9$ (3 Marks)

2. a) Use substitution method to solve; $x - 2y = 27$, $7x + y = 9$ (6 Marks)

b) A man is 30 years old while his daughter is 3 years old. In how many years time will the daughter be half of her father's age? (6 Marks)

c) Expand and simplify where possible; i) $(x+3)(2x+1)$ (4 Marks)

ii) $(3x-2y)(x-2)$ (4 Marks)

3. a) Solve the quadratic equation; $y^2 = 6y - 9$ (6 Marks)

b) Find the equation whose roots are 4 and $-1/3$. (5 Marks)

c) Triangle ABC has a base $(x+3)$ cm and a height of x cm. If its area is 5cm^2 , calculate the length of its base. (9 Marks)



4. a) Factorise; $c(y-z) - (y+z)$ (3 Marks)

$$\frac{x^2 - 9}{5x^2 - 13x - 6}$$

$$-b \pm \sqrt{b^2 - 4ac}$$

$$29 \pm \sqrt{29^2 - 4 \times 1 \times 5}$$

$$2 \pm \sqrt{29^2 - 20}$$

$$3x^2 = 10$$

$$y^2 - 6y + 9 = 0$$

$$(y-3)^2 = 0$$

$$y = 3$$

$$(x-4)(x+\frac{1}{3})$$

$$x(x+\frac{1}{3}) - 4(x+\frac{1}{3})$$

$$x^2 + \frac{1}{3}x - 4x - \frac{4}{3}$$

$$x(x-9)$$

$$5x^2 - 10x - 3x - 4$$

$$5x(x-2) - 3(x-2)$$

$$y = 3$$

$$y - 3 = 0$$

$$y = 3$$

$$1 = 3$$

x =

roots

b) Solve the inequality below and represent the solution on a number line;
 $3x - 5 < 22 \leq 5x - 6$ (6 Marks)

c) Solve the equation, $\frac{2x^2 - 15}{x} = 7$. (6 Marks)

5. a) Solve the quadratic equation $2x^2 - 5x - 3 = 0$ using;
i) Quadratic formula. (5 Marks)
ii) Completing the square. (5 Marks)

b) A farmer requires 4 bags of fertilizer and 3 packets of maize seed for his plot. The total cost of both sh. 1,500. If a bag of fertilizer costs sh. 200 more than a packet of maize seed. Calculate;

i) Price of a bag of fertilizer.
ii) Price of a packet of maize seed. (10 Marks)

$ax^2 + bx + c = 0$

$d = 4 + x$

$a = 2$
 $b = -5$
 $c = -3$

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$\frac{5}{2} \times \frac{2}{1}$

$\frac{5}{2} \times \frac{1}{2}$

$\frac{5}{2}$

$$\frac{2x^2 - 15}{x} = 7$$

$$2x^2 - 15 = 7x$$

$$2x^2 - 7x - 15 = 0$$

$$2x^2 - 10x + 3x - 15 = 0$$

$$2x(x - 5) + 3(x - 5) = 0$$

$$(2x + 3)(x - 5) = 0$$

$$2x + 3 = 0 \quad x - 5 = 0$$

$$2x = -3 \quad x = 5$$

$$x = -\frac{3}{2} \quad x = 5$$

$$x = -\frac{3}{2} \quad x = 5$$

$$x = -\frac{3}{2} \quad x = 5$$

$$x = -\frac{3}{2} \quad x = 5$$

$$3x^2 - 11x$$

$$(i) 3x - 5 < 22$$

$$(ii) 22 \leq 5x - 6$$

$$\frac{3x < 27}{3}$$

$$x < 9$$

$$46 - 3x$$

$$3$$

$$(i) 22 \leq 5x$$

$$\frac{22 \leq 5x}{5} \quad \frac{22}{5} \leq x$$

$$\frac{12}{-10} \quad \frac{12}{-10} = -1.2$$

16
2x
3x
2x