REPECLIC OF SOMALIALD
ALHUDA SECONDARY SCHOOL

Name.....

School .....……

Class .....……..

Republic of Somaliland

Ministry of Education

Alhuda National Examination Board

Form 4

MATHEMATICS Examination

10/24/2017

Time 1 hours

Plus 10 minutes before the exam for reading through the paper

TOTAL TIME 1 hours 10 minutes

INSTRUCTIONS TO CANDIDATES

This paper consists of 5 printed pages.
Count them now. Inform the invigilator if there are any missing.

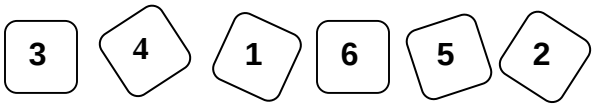
PART ONE (7 multiple choice questions): 14 marks
PART TWO (7 structured questions): 36 marks

TOTAL 50 marks

- Answer ALL questions.
- All answers and working must be written on this paper in the spaces provided immediately after each question.
- No extra paper is allowed.
- No calculators are allowed.
- If you make a mistake cross out the incorrect answer clearly and write your correct answer.

PART 1: Multiple Choice questions. Circle the correct answer. 2.5 mark each.

1. Abdi has the following cards with numbers written on them.



2. What is the probability of picking a card with an odd number?

a) $\frac{1}{6}$
b) 1/3
C) ½
D) 5/6

3. . If $f(x) \to \frac{2x-7}{3}$ then f (2) is

a) 1
b) 4
c) -3
d) -1

4. What is the gradient of the line 3x-2y = 6.

a) $\frac{2}{3}$
b) $\frac{-2}{3}$
c) $\frac{3}{2}$
d) $\frac{-3}{2}$

5. The gradient function of the curve $y = 3x^2$ at the point (2, 12) is.

a) 12
b) 72
c) 3
d) 8

5. The minimum of the function $y = x^2 - 3x + 2$is

a) (3,2)
b) (3/2, -1/4)
c) (1,0)
d) (2,0)

6. The equation of the tangent line to the curve $y = 2x^4 - 5x^3$ at x =2. Is

a) Y = 4x -7
b) 4x
c) Y = 4x – 16
d) Y = 4x -2

7. The $\lim_{x \to 4} \frac{x^2}{x}$ is equal to

a) 2
b) 4
c) 8
d) 2

PART TWO: 40 marks

Answer ALL questions in the spaces provided. Each question carries **5.2 Marks.**

1. Find the coordinate of turning points of the curve $y = 2x^2 - 4x + 1$ and determine the nature of the points by using second derivatives.

b) Find derivative of $\boldsymbol{y = 3\sqrt{x} + 2x^2 - 4x + 20}$.

2. The displacement of a body at time t second given in meters is given by the formula $s = \mathbf{t}^3 - 6t^2 + 9t$. find

   a) An expression for the velocity and acceleration of the particle intern of t.

   b) The times at which the body is at rest

3. a) Given that $dy/dx = 2x + 3$ and $x = 1$ when $y = 9$. Find the equation of y in terms of x.

b) Differentiate $y = \sin^4 x$

4. Given that the curve with equation $y = Ax^2 + Bx$ has a gradient 7 at the point (6, 8). Find the values of the constants A and B.

5. Find the equation of normal to the curve $y = 3x^2 + 7x - 2$ at the point p where $x = -1$

6. For the frequency distribution shown below, find the



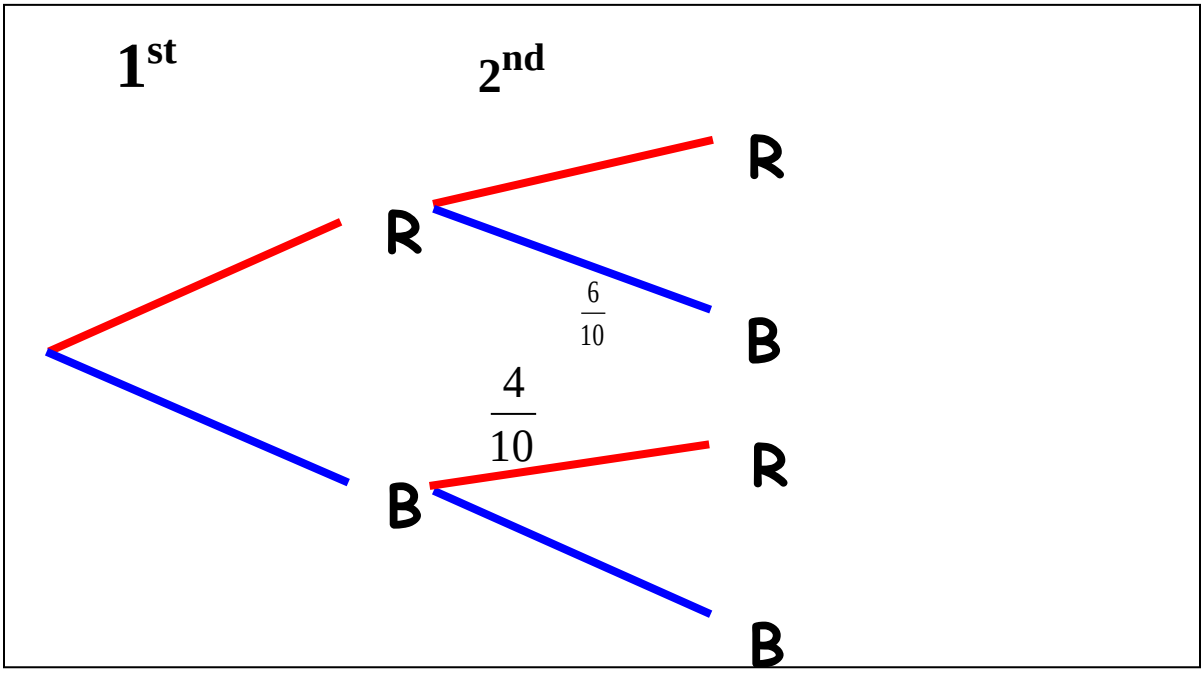
Shoe size	5	5 ½	6	6 ½	7
Frequency	3	4	10	14	4

a) median

b) mode

c) mean

7. There are 4 red and 6 blue pens in a drawer. Two are taken out at random. Complete the tree diagram showing the probabilities of the different events if the 1st is replaced before the 2nd is taken.



Find the probability of drawing out

i) One red and one blue pen

ii) Two blue pens

iii. One of each colour