

**GRADE 12 MATHEMATICS
NOVEMBER EXAMINATION PAPER 1**

QUESTION 1

1.1 Solve for x

1.1.1 $x^2 - 9x + 20 = 0$ (3)

1.1.2 $x(x + 3) - 1 = 0$ (correct to 2 decimal points) (3)

1.1.3 $x^2 + 7x < 0$ (3)

1.1.4 $2x^{\frac{2}{3}} = 64$ (4)

1.2 Solve simultaneously for x and y if:

$2x - y = 8$, and
 $x^2 - xy + y^2 = 19$ (7)

1.3 Solve the expression below without the use of a calculator:

$$\frac{\sqrt[3]{4} + \sqrt[3]{2}}{\sqrt[3]{16}}$$

(4)

QUESTION 2

2.1 The terms p , $(2p + 2)$, $(5p + 3)$ form an arithmetic sequence.

Determine:

2.1.1 The value of p . (4)

2.1.2 The rule in the form of $a_n = a + (n - 1)d$. (2)

2.1.3 The 15th term of the sequence. (4)

2.2 x , y , 81 is a geometric sequence.
And $y = 2x - 5$
All terms in the sequences are integers.
Calculate the values of x and y . (10)

(20)

QUESTION 3

Given the sequence 2, 8, 10, 14,

3.1 What type of sequence is this? Justify your answer by calculation. (2)

3.2 Calculate T_{10} . (3)

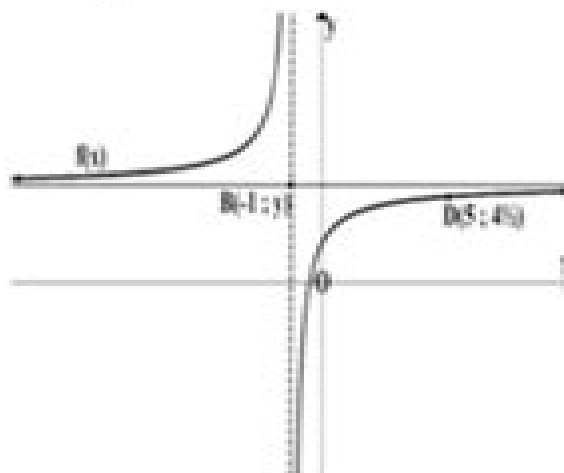
3.3 Which term has a value of 322? (3)

3.4 Determine by calculation if 1204 is a term in the sequence? (4)

(12)

QUESTION 4

The sketch below shows the graph of $f(x) = \frac{-1}{x+5} + 4$. The asymptotes of f intersects at $B(-1; y)$. The Point $D(5; 4)$ is a point on the graph.



4.1 Determine the value of p . (1)

4.2 Prove that $q = 5$. (2)

4.3 Calculate the x -intercept of f . (2)

4.4 Determine the equation of the vertical asymptote of h if $h(x) = f(x + 4)$. (2)

4.5 One of the symmetry axes of f is an increasing function. Determine the equation of the symmetry axis. (3)

4.6 Give the values x for $f(x) \geq x + 6$. (2)

4.7 Determine the equation of g , the reflection of f in the x -axis and move two units to the right. (3)

(15)

Maths Paper 1 Caps 2013 November Memorandum

JA Banks



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Minimum Deterrence: Examining the Evidence Keith B. Payne, James Schlesinger, 2016-04-14 The National Institute for Public Policy's new book *Minimum Deterrence: Examining the Evidence* is the first of its kind. Dr Keith Payne, former Secretary of Defense James Schlesinger, and an unparalleled bipartisan group of senior civilian and military experts critically examine eight basic assumptions of Minimum Deterrence against available evidence. In general, Minimum Deterrence does not fare well under the careful scrutiny. Proponents of a Minimum Deterrent US nuclear force posture believe that anywhere from a handful to a few hundred nuclear weapons are adequate to deter reliably and predictably any enemy from attacking the United States now and in the future. Because nuclear weapons are so destructive, their thinking goes, no foreign leader would dare challenge US capabilities. The benefits advocates claim of reducing US nuclear weapons to the minimum level needed are better relations with Russia and China, reinforcement of the arms control and Nonproliferation Treaty, billions of defense dollars in savings, and greater international stability on the way to nuclear zero. As political pressure builds to pursue this vision of minimum US deterrence, *Minimum Deterrence: Examining the Evidence* stands as the seminal study to address the many claims of great benefit using available evidence. This book was published as a special issue of *Comparative Strategy*.

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