

GAUTENG DEPARTMENT OF EDUCATION
PREPARATORY EXAMINATION

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MATHEMATICS
(First Paper)

MEMORANDUM

QUESTION 1 [14]

1.1 $x(x+2) = 0$
 $x = 0$ or $x = -2$

1A factorizing
2 CA for each answer

[3]

1.2 $x \leq -2$ or $x \geq 0$; with $x > 0$
 $\therefore x > 0$

2CA for each inequality
(-1) if "<" is used
1CA for selecting correct inequality
Full marks for answer only.

[3]

1.3 $x = \frac{-(-3) \pm \sqrt{(-3)^2 - 4(2)(-7)}}{2(2)}$
 $x = \frac{3 \pm \sqrt{65}}{4}$
 $x = 2.77$ or $x = -1.27$

1A substitution into correct formula

$\frac{2}{3}$ if left in surd form

2CA for each correct answer

[3]

1.4 $1 + 2^{n-2} + 2^{n-1} + 2^n = 53$
 $2^n(2^{-2} + 2 + 1) = 52$
 $2^n = 16$
 $n = 4$

1A for $2^0 = 1$
1A for factorizing
1A for RHS
1CA
1CA

[5]

QUESTION 2 [10]

2.1.1 $(x+1)^2 - 4 = 16$
 $(x+1)^2 = 20$
 $x+1 = \pm\sqrt{20}$
 $x = \pm 2\sqrt{5} - 1$

OR

$(x+1)^2 - 4 = 16$
 $x^2 + 2x - 19 = 0$
 $x = \frac{-2 \pm \sqrt{(2)^2 - 4(-19)}}{2}$
 $x = \pm 2\sqrt{5} - 1$

1A squaring both sides
1CA for isolating complete square
1M for taking square root
2CA for each answer

1A squaring both sides
1CA simplification
1CA substitution into correct formula

2CA for each answer

[5]

2.1.2 $k = 0$

1A

[1]

Gauteng 2014 Preparatory Mathematics

RJ Shavelson



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