GATITU SECONDARY SCHOOL, P.O. BOX 327 – 01030, GATUNDU.

FORM 2 MATHEMATICS. MID TERM EXAMINATION TERM 2 2016.

NAME_____ADM_____CLASS_____

INSTRUCTIONS:

- Write your name, Adm. In the space provided above.
- Answer all questions in the space below each question.
- Clean organized work earns you more marks while slovenly work will be heavily penalized.
- Mathematical tables may be used unless where you are advised otherwise.
- Non-programmable silent calculators may also be used.

1. Find the value of $\sqrt[3]{\frac{135.01 \times 21.952}{6.859}}$ using logarithms. (4mks

2. Simplify $\frac{a^4 b^3 \times a^2 c^4 \times b^{-2} c^3}{a^{-3} b^3 c^3}$ (3mks

3. Find a) gradient
b) y – intercept
c) x – intercept in

i) $y + 2x - 3 = 0$ (3mks

ii) $y = -10$ (3mks

4. Determine the equation of the line passing through the given points with the given gradients.

a) $-1/3$; (6 , 2) (2mks

b) m ; (a, b) (2mks

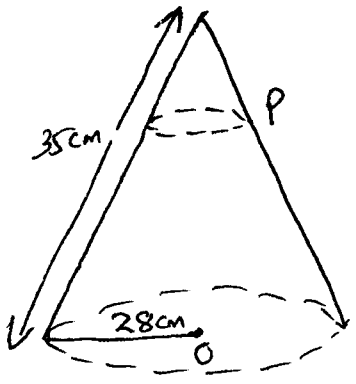
5. If A(2, - 7), B(2, - 2) and c(7, - 2) are the vertices of a triangle. Find the image of the triangle under a reflection in $y = 3$. (Use graph paper provided). (4mks

6. A triangle whose vertices are p(2, 2), Q(4, 2) and R(4, 4) is mapped onto a triangle whose vertices are p'(4,2) Q'(2, -2), and R'(2, - 4) under a rotation.

a) Find the centre and angle of rotation. (4mks

b) Find the images of point (0, 4) under the same rotation. (2mks

7. The figure shows a cone of radius 28cm and the slant side of length 35cm. At a point P, 14cm vertically below the vertex , the cone is cut across to form a smaller one. Calculate the base radius of the smaller cone. (4mks



The corresponding sides of two similar regular pentagons are 3cm and 7cm respectively.

a) Find the ratio of their areas. (3mks

b) Calculate the area of the larger if the area of the smaller is 36cm2. (3mks

9. The radius of a soap bubble increases by 4%. Calculate the percentage increase in its.

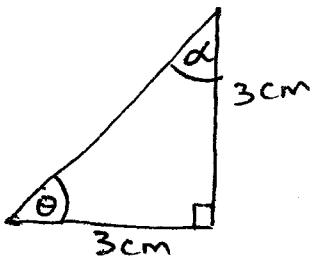
i) Surface area (3mks

ii) Volume (to ~~the~~ three significant figures) (3mks

10. Evaluate $\frac{a^b - b^a}{b^b \times a^a}$ if $a = 2$ and $b = \bar{2}$ (3mks

11. A ladder 20m long leans against a building and reaches a point on the building that is 14 metres above the ground. How far from the bottom of the building is the foot of the ladder? (3mks

12(a) Draw the following triangle accurately. (3mks



b) Using your diagram measure the indicated angles. (2mks

$\theta =$

$\alpha =$

c) Find the tangents of the indicated angles . (4mks

tan θ =

Tan α =

13. Express the following angles in degrees and minutes. (4mks

a) 15.3°

b) 25.75°

14. A boy on top of a vertical wall 13.5m high throws a ball down and notices that the ball hits a stone on the ground 18m away from the foot of the wall. Calculate the angle of depression of the stone from the top of the wall. (4mks

15. Convert $0.\dot{6}\dot{7}$ into a fraction. (2mks

16. A bus uses 40 litres of fuel to travel 100km. How much fuel will be used on a journey of 68km? (2mks

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