1. Convert 72<sub>6</sub> to a number in base three
2. 2211
3. 2121
4. 1212
5. 1122
6. UTME\_Mathematics\_2012\_q2.JPG
7. UTME\_Mathematics\_2012\_q2\_optA.JPG
8. UTME\_Mathematics\_2012\_q2\_optB.JPG
9. 5/6
10. 4/5
11. Evaluate 21/9 to 3 significant figures
12. 2.30
13. 2.31
14. 2.32
15. 2.33
16. 2
17. A man earns N3,500 per month out of which he spends 15% on his children’s education. If he spends additional N1,950 on food, how much does he have left?
18. N525
19. N1,025
20. N1,950
21. N2,975
22. 27<sup>x+2</sup> / 9<sup>2x</sup> = 3<sup>2x</sup>
23. 3
24. 4
25. 5
26. 6
27. If log<sub>3</sub>X<sup>2</sup>=-8, what is X?
28. 1/3
29. 1/9
30. 1/27
31. 1/81
32. Simplify (&radic;6 + 2)<sup>2</sup> - ((&radic;6 + 2<sup>2</sup>)
33. 2&radic;6
34. 4&radic;6
35. &radic;6
36. 16&radic;6
37. If P is a set of all prime factors of 30 and Q is a set of all factors of 18 less than 10, Find **P**n **Q**
38. {3}
39. {2, 3}
40. {2, 3, 5}
41. {1, 2}
42. In a class of 46 students, 22 play football and 26 play volleyball. If 3 students play both games, how many play neither?
43. 1
44. 2
45. 3
46. 4
47. Find the remainder when 2x<sup>3</sup> - 11x<sup>2</sup> + 8x – 1 is divided by x + 3
48. 871
49. -781
50. -187
51. -178
52. Solve for x and y in the equations below x<sup>2</sup> - y<sup>2</sup> ; x+y = 2
53. x = 0, y = -2
54. x = 0, y = 2
55. x = 2, y = 0
56. x = -2, y = 0
57. If y varies directly as &radic;n and y = 4 when n = 4, find y when n= 16/9
58. &radic;17
59. 4/3
60. 8/3
61. 2/3
62. U is inversely proportional to the cube of V and U = 81 when V = 2. Find U when V = 3
63. 24
64. 27
65. 32
66. 36
67. UTME\_Mathematics\_2012\_q15.JPG
68. y>2/3
69. y<2/3
70. y>-2/3
71. y<-2/3
72. Find the range of values of m which satisfy (m-3)(m-4)<0
73. 2 <m <5
74. -3< m < 4
75. 3< m< 4
76. -4<m<3
77. UTME\_Mathematics\_2012\_q17.JPG
78. UTME\_Mathematics\_2012\_q17\_optA.JPG
79. UTME\_Mathematics\_2012\_q17\_optB.JPG
80. UTME\_Mathematics\_2012\_q17\_optC.JPG
81. UTME\_Mathematics\_2012\_q17\_optD.JPG
82. The nth term of a sequence is n<sup>2</sup> - 6n – 4. Find the sum of the 3rd and 4th terms
83. 24
84. 23
85. -24
86. -25
87. . The sum to infinity of a geometric progression is -1/10 and the first term is -. Find the common ration of the progression
88. -1/5
89. -1/4
90. -1/3
91. -1/2
92. The binary operation **\***is defined on the set of integers such that pq = pq + p – q. Find 2**\***­(3**\***4)
93. 11
94. 13
95. 15
96. 22
97. A binary operation on the set of real numbers is defined by m n = for all m, n ϵ R. If the identity element is 2, find the inverse of – 5
98. UTME\_Mathematics\_2012\_q22.JPG
99. 3
100. 4
101. 5
102. 7
103. Given that I<sub>3</sub> is a unit matrix of roder 3, find the modulus I<sub>3</sub>
104. -1
105. 0
106. 1
107. 2
108. UTME\_Mathematics\_2012\_q24.JPG

A.15

B.25

C.30

D. 80

1. The angles of a polygon are given by x, 2x, 3x, 4x and 5x respectively. Find the value of x
2. 24
3. 30
4. 33
5. 36
6. UTME\_Mathematics\_2012\_q26.JPG
7. X<sup>0</sup>
8. (90-x) <sup>0</sup>
9. (90+x) <sup>0</sup>
10. (180-x) <sup>0</sup>
11. UTME\_Mathematics\_2012\_q27.JPG
12. 91cm<sup>2</sup>
13. 78 cm<sup>2</sup>
14. 60 cm<sup>2</sup>
15. 19 cm<sup>2</sup>
16. A circular arc substends angle 150at the centre of a circle of radius 12cm. Calculate the area of the sector of arc.
17. 30 pi cm<sup>2</sup>
18. 60 pi cm<sup>2</sup>
19. 120 pi cm<sup>2</sup>
20. 150 pi cm<sup>2</sup>
21. Calculate the volume of a cuboid of length 0.76cm, breadth 2.6cm and height 0.82
22. 3.92cm<sup>3</sup>
23. 2.13 cm<sup>3</sup>
24. 1.97 cm<sup>3</sup>
25. 1.62 cm<sup>3</sup>
26. The locus of a point equidistant from the intersection of lines 3x-7y +7 = 0 and 4x -6y +1 = 0 is a
27. Line parallel to 7x +13y + 8 = 0
28. Circle
29. Semicircle
30. Bisector of the line 7x + 13y +8 =0
31. The gradient of the straight line joining the points P(5, -7) and Q(-2, -3) is
32. ½
33. 2/5
34. -4/7
35. -1/2
36. The distance between the point (4, 3) and the intersection of y = 2x + 4 and y = 7 – x is
37. &radic;13
38. 3 &radic;2
39. &radic;26
40. 10 &radic;5
41. Find the equation of the line through the points ( -2, 1) and (, 4)
42. Y = 2x – 3
43. Y = 2x + 5
44. Y = 3x – 2
45. Y = 2x + 1
46. Evaluate cos 135
47. ½
48. &radic;2/2
49. - &radic;2/2
50. -1/2
51. A man stands on a tree 150cm high and sees a boat at an angle of depression of 740. Find the distance of the boat from the base of the tree.
52. 52cm
53. 43cm
54. 40cm
55. 15cm
56. If y = x<sup>2</sup> - 1/x find dy/dx
57. 2x – 1/x<sup>2</sup>
58. 2x + x<sup>2</sup>
59. 2x - x<sup>2</sup>
60. 2x + 1/x<sup>2</sup>
61. Find dy/dx if y = cos x
62. Sin x
63. – sin x
64. Tan x
65. – tan x
66. UTME\_Mathematics\_2012\_q38.JPG
67. 11/3
68. 3/11
69. -3/11
70. -11/3
71. UTME\_Mathematics\_2012\_q39.JPG
72. 1
73. 2
74. 3
75. 4
76. UTME\_Mathematics\_2012\_q40.JPG
77. 12
78. 9
79. 8
80. 7
81. UTME\_Mathematics\_2012\_q41.JPG
82. 10%
83. 20%
84. 50%
85. 60%
86. The mean of seven numbers is 96. If an eighth number is added, the mean becomes 112. Find the eighth number
87. 126
88. 180
89. 216
90. 224
91. Find the median of 2, 3, 7, 3, 4, 5, 8 ,9 ,9 4, 5 , 3, 4, 2, 4 and 5
92. 9
93. 8
94. 7
95. 4
96. Find the range of 4, 9, 6, 3, 2, 8, 10 and 11
97. 11
98. 9
99. 8
100. 4
101. Find the standard deviation of 2, 3, 8, 10 and 12
102. 3.9
103. 4.9
104. 5.9
105. 6.9
106. <sup>n + 1</sup>C<sub>n-2</sub> if n = 15.
107. 3,630
108. 3,360
109. 1,120
110. 560
111. In how many ways can the letters of the word TOTALITY be arranges?
112. 6,720
113. 6,270
114. 6,207
115. 6,027
116. The probability that a student passes a physics test is 2/3. If he takes three physics tests, what is the probability that he passes two of the tests?
117. 4/9
118. 6/9
119. 4/27
120. 2/27
121. The probabilities that a man and his wife live for 80 years are 2/3 and 3/5 respectively. Find the probability that at least one of them will live up to 80 years.
122. 2/15
123. 3/15
124. 7/15
125. 13/15