**JUNIOR MATHEMATICS OLYMPIAD**

12A] For the function f(x) = $\frac{3x+2}{x}$ , find the

(i) f (2) and

(ii) f (-2) [3]

B. Make x the subjects of the formula

 Y= $\frac{2a+3x }{x}$ [3]

C. Solve the following equation

 (i) $\frac{x+2}{3}$ = 2x

 (ii) w2 + 4w + 4 = 0

1. A playing park is triangular in shape ABC such that AB = 20m, AC = 18 m and BC = 16 m.
2. Taking a scale of 1 cm to represent 2m, construction the model of this playing park using are ruler and pair of compasses. Let the line AB be the horizontal. [3]
3. A straight pavement is made from point A to side BC such that it is exactly halfway between the sides AC and AB. Construct a line representing this pavement and let it meet the sides at D, where the tuck-shop is located. Measure and write down the distance from A to where the tuck-shop (D) is in metres. [2]
4. From point C another straight pavement is constructed to meet the side AB 900 angle. Using a ruler construct a straight line representing this pavement. What is the length of this pavement in metres? [3]
5. Calculate the area of the playing park expressing your answer in square metres. [2]

**Total marks: 10**

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1. The diagram above shows Mr. Chanda’s bill for 2005 December

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| **ZESCO BILL DECEMBER 2005** |
| Fixed Charge K \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ units at K200 per unit K 10,000  **Total** **K 15,750**ZESCO Powering the Nation through Inovation |

1. Calculate
2. The fixed charge [2]
3. The number of units used [2]
4. In 2006 the cost per unit increased by 50 %. Calculate the total for February 2006 bill if he used 40 units. [2]
5. Mr Chanda finds that from 2000 to 2005 his total bill increased by 25%. Calculate the total bill in 2000. [3]

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1. (i) The Cinema hall has a capacity of 600 seats.
2. By 20 00 hours the hall was $\frac{3}{4}$ full. How many seat were empty? [2]
3. By 22 00 hours two thirds of the empty seats were now filled up. How many more people entered thee hall between 20 00 hours and 22 00 hours? [2]
4. Apply the difference of two squares to evaluate 6002 – 5992. [3]
5. Factorise completely

 x4 – y4 [3]

**Total Marks: 10**