AN ROINN OIDEACHAIS.

(Department of Education).

LEAVING CERTIFICATE EXAMINATION, 1953.

MATHEMATICS—ARITHMETIC.

TUESDAY, 9th JUNE.—MORNING, 10 TO 12.

Six questions may be answered.

Mathematical Tables may be obtained from the Superintendent.

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1. Find the cost of buying 23 tons 8 cwt. 3 qrs. of turf at £4 14s. 8d. per ton.

By how much, to the nearest penny, would the cost be increased if the amount of turf bought were increased by 20% and the price of turf reduced by $12\frac{1}{2}\%$?

[33 marks.]

2. Find the value of

$$\frac{321{\cdot}6\times(0{\cdot}08395)^2}{17{\cdot}34\times\sqrt{0{\cdot}6817}}$$

correct to three significant figures.

[33 marks.]

3. A man invests £325 in $4\frac{1}{2}\%$ Stock at 91 and £175 in 5% Stock at 105. Find his total income from these investments, and the percentage yield he obtains on the total money invested.

If he would obtain the same income by investing the whole £500 in shares at 12s. 6d. each, find what dividend per share is paid on those shares.

[33 marks.]

4. The surface area of a cube is 40 square inches. Find, giving the answer correct to one place of decimals,

(i) the volume of the cube in cubic inches,

(ii) the length, in inches, of the diameter of a sphere having the same volume as the cube.

[33 marks.]

5. (i) Find, correct to the nearest pound, the sum of money that would amount to £350 in 3 years at $4\frac{1}{2}\%$ per annum Compound Interest.

(ii) Find the least number of years in which a sum of money would more than double itself at $4\frac{1}{2}\%$ per annum Compound Interest.

[33 marks.]

6. The volume of a right circular cone is 11 cubic inches, and the area of its curved surface is double the area of its base. Find the height of the cone in inches, correct to one decimal place.

A frustrum, whose volume is half the volume of the cone, is formed by cutting the cone across at a certain height. Find the perpendicular height of the frustrum in inches, correct to one decimal place.

[34 marks.]

7. A merchant, after allowing a discount of a penny in the shilling off the marked price of his goods, makes a profit of 10%. The *nett* value of his weekly sales (the value after the discount has been deducted) is £275.

(i) Find his weekly profit.

(ii) What would his percentage profit be if he were to allow no discount ?

If, instead of a penny in the shilling, he were to allow a discount of two shillings in the £1, by what percentage must the nett value of his weekly sales be increased so that his weekly profit might be the same as at present ?

[34 marks.]