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(Department of Education).

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LEAVING CERTIFICATE EXAMINATION, 1936.

MATHEMATICS.

ARITHMETIC.

FRIDAY, 19*th JUNE*,—MORNING, 10 A.M. TO 12 NOON.

Six questions may be answered.

Mathematical Tables may be obtained from the Superintendent.

1. Goods purchased at £18 10s. 6d. per ton were sold at $3\frac{1}{4}$d. per lb. Expenses amounted to 20% of the selling price: find the percentage profit. [30 marks.]

2. Using logarithms, find the amount at Compound Interest of £480 for 18 years at $4\frac{1}{2}$% per annum. [30 marks.]

3. A watch which gains uniformly was $2\frac{1}{2}$ mins. slow at noon on Sunday and on the following Friday at 7 hrs. 12 mins. a.m. it was $3\frac{1}{2}$ mins. fast. When did it show correct time? [30 marks.]

4. Find to *two* significant figures the square root of

$$\frac{(60{\cdot}38)^3 - (58{\cdot}79)^3}{(60{\cdot}38)^2 - (58{\cdot}79)^2}$$

[30 marks.]

5. P and Q ran a race of 100 yards. P got a start of 2 seconds and won by 17 yards. In a second race over the same course P got a start of 1 second and won by 8 yards. Find the time it takes each of them to run a hundred yards. [30 marks.]

6. By selling out £3,600 of $3\frac{1}{2}$% Stock at $80\frac{3}{4}$ and investing the proceeds in $4\frac{1}{2}$% Stock a man's income was increased by £2 : 5s. per annum. What price did he pay for the $4\frac{1}{2}$% Stock? [35 marks.]

7. Three solid spheres of the same material are 1·5 ins., 2 ins., 2·5 ins. respectively in radii and the smallest weighs 5·4 lbs. If all three be recast into a single solid sphere, what will be its weight and the length of its radius ? [35 marks.]

8. Without applying the usual method for extracting the square root prove that the following numbers are *not* perfect squares :

(i) 54,874,683, (ii) 3,629,475, (iii) 1,682,769.

The number 3,83*,764 is a perfect square : find the missing digit (*). [35 marks.]

9. Two right circular cones whose vertices are A and B stand on opposite sides of the same base : their slant heights are 13 ins. and 5 ins. respectively and the distance AB is 14·4 ins. Find the total volume enclosed by the surfaces of the two cones.

[35 marks.]