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INTERMEDIATE CERTIFICATE EXAMINATION, 1935.

ELEMENTARY MATHEMATICS (Algebra).
FOR GIRLS ONLY.

TUESDAY, 18th JUNE.—AFTERNOON, 3.30 P.M. TO 6. P.M.

Seven questions may be answered.

Mathematical Tables may be obtained from the Superintendent.

1. Solve the equation

$$\tfrac{1}{2}(2x+1) - \tfrac{2}{3}(3x-4) = 4.$$

[20 marks]

2. Find the value of

$$\frac{2a^3 - a^2 - 10a}{a^3 + a^2 - 2a}$$

when $a = 1{\cdot}75$.

[20 marks.]

3. If $A = \frac{1}{2}x - 1$ and $B = x + 2$, find the value of $4A^2 - B^2$ when (i) $x = -\frac{1}{2}$; (ii) $A = B$.

[20 marks.]

4. Two pounds of tea together with 18 pounds of sugar cost the same as 3 pounds of tea with 9 pounds of sugar. If one pound of tea together with one pound of sugar cost 2s. 6d., find the price of each.

[20 marks.]

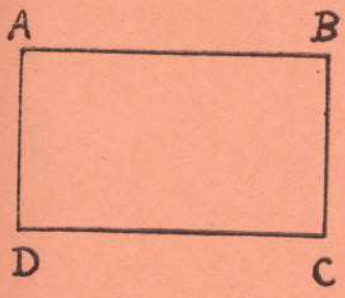
5. Prove the identity

$$2x^3 + 5x^2 + x - 2 \equiv (x+1)\,(x+2)\,(2x-1).$$

Show that $2 \times 99^3 + 5 \times 99^2 + 99 - 2$ is divisible by 100, 101 and 197 and then find its value.

[22 marks.]

6. The diagram represents a rectangle ABCD in which AB $= 2(x+1)$ inches, BC $= 1\frac{1}{2}x$ inches, and DC $= 5x - 7$ inches.



Find (i) the length of the perimeter, (ii) the area of the rectangle.

[22 marks.]

7. Solve, to 2 decimal places, the equation $2x^2 - 10x = 11$.

[22 marks.]

8. The equation

$$2x^2 - 3x = 2(48)^2 - 3(48)$$

is satisfied by $x = 48$. Find another value of x which satisfies the equation.

[22 marks.]

9. Draw a graph of the circumference $(2\pi r)$ of a circle, radius r, for values of r from 0 to 5. Then, on the same axes and with the same scales, draw another graph which will show the area (πr^2) of the circle.

[22 marks.]