

86. Solve $\frac{11}{x-3} - \frac{39}{x-4} + \frac{45}{x-5} - \frac{17}{x-6} = 0$, giving the three values of x .

87. Prove that $(ax+by+cz)^2 + (bx+cy+az)^2 + (cx+ay+bz)^2 = 3(ax+by+cz)(bx+cy+az)(cx+ay+bz)$, if $a+b+c=0$, or if $x+y+z=0$.

88. If $x+y+z=2s$, then will $(s-x)^2 + (s-y)^2 + (s-z)^2 + 3xyz = s^3$.

89. If $x+y+z=0$, then will $2(x^3+y^3+z^3) - 9xyz(x^2+y^2+z^2) + 21x^2y^2z^2 = 0$,

and also $x^3+y^3+z^3 + 9x^2y^2z^2(x^3+y^3+z^3) - 30x^2y^2z^2 = 0$.

90. If $\frac{b^2+c^2-a^2}{2bc}$ always lies between ± 1 ,

then will the sum of any two of these quantities be greater than the third.

91. If $(-1)^x + (-1)^y = y$, show that its value is given by the equation $y^2 - 3y + 2 = 0$, and solve this equation.

92. If A, B and C are the three angles of any plane triangle whose area is Δ , then will

$$\cot A + \cot B + \cot C = \frac{a^2 + b^2 + c^2}{4\Delta}$$

$$a^2 \cot A + b^2 \cot B + c^2 \cot C = 4\Delta$$

$$1 + \cot^2 A + \cot^2 B + \cot^2 C = \frac{a^4 + b^4 + c^4}{8\Delta^2}$$

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CONTEMPORARY OPINION ON EDUCATIONAL TOPICS.

PROFESSOR HUXLEY AT OXFORD.

Prof. Huxley's address to the prize-winners at a recent Oxford University contest is so full of good advice to students, and so suggestive to teachers, that we give the following extracts from it:

"Upon whatever career you may enter, intellectual quickness, industry, and the power of bearing fatigue are three great advantages. But I want to impress upon you, and through you upon those who will direct your future course, the conviction which I entertain that, as a general rule, the relative importance of these three qualifications is not rightly estimated; and that there are other qualities of no less value which are not directly tested by school competition. A somewhat varied experience of men has led me, the longer I live, to set the less value upon mere cleverness; to attach more and more importance to industry and to physical endurance. Indeed, I am much disposed to think that endurance is the most valuable quality of all; for industry, as the desire

to work hard, does not come to much if a feeble frame is unable to respond to the desire.

"Everybody who has had to make his way in the world must know that while the occasion for intellectual effort of a high order is rare, it constantly happens that a man's future turns upon his being able to stand a sudden and a heavy strain upon his powers of endurance. To a lawyer, a physician, or a merchant it may be everything to be able to work sixteen hours a day for as long as is needful, without yielding up to weariness. Moreover, the patience, tenacity, and good humour which are among the most important qualifications for dealing with men, are incompatible with an irritable brain, a weak stomach, or a defective circulation. If any one of you prize-winners were a son of mine, and a good fairy were to offer to equip him according to my wishes for the battle of practical life, I should say, 'I do not care to trouble you for any more cleverness; put in as much industry as you can instead; and, oh, if you please, a