Indian lake when good, is perfectly soluble in spirits of wine, and produce a fine crimson, but is not often to be obtained.

Yellow.—King's yellow, turpeth material, and Dutch pink, all form very bright yellows, and the latter is very cheap. Seed-lac varnish assimilates with yellow very well; and when they are requi ed bright, an improvement may be effected by infusing turmeric in the varnish which covers the ground

Green.—Distilled verdigris laid on a ground of leaf gold, produces the brightest of all greens; other greens may be formed by mixing King's yellow and bright Prussian blue, or turpeth mineral and Prussian blue, or Dutch pink and verdigris.

Blue.—Prussian blue, or verditer glazed with Prussian blue on smalt.

White.—White grounds are obtained with greater difficulty than any other. One of the best is prepared by grinding up flock-white, or zinc-white, with one sixth of its weight of starch, and drying it; it is then tempered, like the other colours, using the mastic varnish for common uses, and that of the best copal for the finest. Particular care should be taken, that the copal for this use be made of the clearest and whitest pieces. Seed-lac may be used as the uppermost coat, where a very delicate white is not required, taking care to use such as is least coloured.

Black.—Ivory-black, or lamp-black; but if the lamp-black, it should be previously calcined in a closed crucible.

Black grounds may be formed on metal, by drying linseed oil only, when mixed with a little lamp-black. The work is then exposed in a stove to a heat which will render the oil black. The heat should be low at first, and increased very gradually, or it will blister. This kind of japan requires no polishing. It is extensively used for defending articles of iron-mongery from rust.

Tortoise-shell ground for metal.—Cover the plates intended to represent the transparent parts of the tortoise-shell, with a thin coat of vermilion in seed-lac varnish. Then brush over the whole with a varnish composed of linseed oil boiled with umber until it is almost a black. The varnish may be thinned with oil of turpentine before it is used. When it is done it may be set in an oven, with the same precautions as the black varnish last named.

Clarifying Wines in Paris.

The number of eggs employed in Paris alone in clarifying wines is about 4,500,000. By this means a wholesome and nourishing article of food is taken away from public consumption, and its price considerably enhanced. To avoid this, certain kinds of powders are now beginning to be employed, by which wines may be clarified with equal facility and at a smaller expense.

Board of Arts and Manufactures
FOR UPPER CANADA.

The final examinations of candidates, members of Mechanics' Institutes, took place on the 7th, 8th, 9th, and 10th, instant. Nineteen candidates were presented, eleven from the Whitby Mechanics' Institute, and eight from the Toronto Institute. We have not yet received the reports of the examiners, but in the meantime publish a portion of the Examination papers set for the occasion, and will give the remainder with the Examiners Reports, in the next issue of the Journal.

ARITHMETIC.
(*Three hours allowed*).

I. If the port wine contained in a vessel weigh 15 cwt. 3 qrs. 24 lbs., how much weight of pure water, and how much of cow's milk, would the same vessel contain, the weights of equal bulks of wine, water and milk being as 997, 1000 and 1032?

II. If the rent of a farm of 26 a. 2 r. 23 p. be £50 8s. 9d., what would be the rent of another, containing 17 a. 3 r. 2 p., if six acres of the latter be worth seven of the former?

III. Determine the expense of papering a room 12 feet high, measuring 20 feet by 15 feet, at the rate of $2\frac{1}{4}$d. per square yard.

IV. The price of .0625 lbs. of tea is 0.4583′ shillings; what quantity can be bought for £61 12s. 0d. ?

V. Reduce 12 feet $4\frac{1}{2}$ inches to the fraction of a mile, and find the corresponding decimal.

VI. A. was owner of $\frac{7}{17}$ of a vessel, and sold $\frac{3}{11}$ of $\frac{5}{8}$ of his share for £$\frac{400}{333}$; what was the value of $\frac{1\frac{2}{3}}{4\frac{1}{4}}$ of $\frac{2}{5}$ of the vessel?

VII. What sum will amount to £425 19s. $4\frac{4}{5}$d. in ten years, at $3\frac{1}{2}$ per cent. simple interest; and in how many more years will it amount to £453 11s. 7d. ?

VIII. Divide £45,000 among A., B., C., D., so that A.'s share : B.'s share : : 1 : 2, B.'s : C.'s : : 3 : 4, and C.'s : D.'s : : 4 : 5.

IX. Divide 4472 into parts which shall be each other in the ratio of 3, 5, 7, 11; and also £500 into parts which shall be in the ratio of $\frac{1}{2}$, $\frac{2}{3}$, and $\frac{4}{5}$.

X. Find the square root of $\frac{6}{5}$.

XI. Find the cube root of 223648543.

XII. If 12 men, or 18 boys, can do $\frac{3}{4}$ of a piece of work in $6\frac{1}{4}$ hours, in what time will 11 men and 9 boys do the rest?