

6. Convert 3407.20 American dollars into French money at 5 francs 15 centimes per dollar, Convert the same into English money at 4s. 2d. per dollar

7. A cistern can be filled by one pipe in two hours, by another in three, and can be emptied by a third in six hours. If, when the cistern is half full, all three be opened at the same instant, in what time will the cistern be filled?

8. Reduce 36 florins 7 cents 5 mils to sterling money

9. The map of a country is drawn on the scale of an inch to five miles. What area on the map will represent a lake 6,000 acres in extent?

10. The adjacent sides of a rectangular field are in the ratio of three to four, and a man walking at the rate of three and a half miles an hour will walk round the boundary in eight minutes. What is the size of the field?

11. Reduce $\frac{1}{8}$ of 13 square metres to the decimal of .0325 of a square yard, a metre being taken as 39.37 inches.

12. If 3 men and 1 boy can reap 13 acres in 4 days, and 14 men and 10 boys can reap 33 acres in 2 days, how long will it take 1 man and 1 boy to reap 5 acres?

Arithmetic.—For Senior Civil Service. Time allowed 3 hours

1. Find, correct to five places of decimals, the value of $\frac{\sqrt{2}}{\sqrt{3}+1} + \frac{\sqrt{2}}{\sqrt{3}-1}$.

2. Simplify $\frac{\cdot\dot{1}\dot{8}}{\frac{1}{3}-\frac{1}{5}} \times \cdot\dot{3}\dot{6} - \frac{\cdot\dot{4}2857\dot{1}-\frac{1}{3}}{\cdot\dot{5}}$

3. Given that an inch = 2.539954 centimetres, express a kilometre in terms of a mile.

4. A canal is 100ft. wide, and of a uniform depth of 25ft. A stream flows through it at the rate of a mile an hour. Find what weight of water it discharges in 24 hours, assuming that a cubic foot of water weighs 62½lb.

5. In a town in which the rateable value of the property is taken to be 90 per cent. of the rent actually paid, a man finds that when a rate of 9½d. in the pound has been struck his rates amount to £4 5s. 6d. What is his rent?

6. Find the discount on £4,630 10s., due three years hence, reckoning compound interest at 5 per cent.

7. A fruiterer buys four dozen oranges for a shilling, he pays for freight and packing half a crown. If 13 oranges are completely spoiled in transit, how many must he sell for a shilling to gain 25 per cent.?

8. Find the change in a man's income when £9473.424 stock is transferred from the 3-percents at 95½ to the 4½-percents at 111½.

9. State the rule for determining whether a given year is a leap-year

In the year 1880 there were five Sundays in the month of February. Find in what year this will next happen.

10. A firm overdraws its account on February 24th, 1894, by £2,000. Its financial year closes on September 30th, and it is found that the gain for the year on a capital of £40,000 is £8,000. Supposing the overdraft paid off with interest at 6 per cent. per annum, at what rate can a dividend be declared?

Find also the share of the profits which each of three partners will get, assuming that their invested capitals are in the ratio of 3 4 5.

11. A piece of work can be done by A and B working together in 10 days, and, assuming that they are paid in proportion to their rates of working, it costs £9. A begins to work at it alone, and continues for 18½ days, after A has left off, B is set to work, and finishes the job in 3 days. How should the £9 be divided between them?

12. Two cubic inches of mercury weigh 1lb. avoirdupois, and 100 cubic inches of air on a certain day weigh 30 grains. If the weight of the column of mercury in a barometer tube be equal to that of a column of air on the same base as the mercurial column, find the height of the barometer, assuming that the height of the atmosphere may be taken to be five miles.

Geography.—For Class D Time allowed 3 hours

1. Explain—Ecliptic, zodiac, solstice, zenith, isobar, parallax, isotherm, equinox.

2. State the arguments that may be used in favour of the theory that New Zealand once formed part of a continental area.

3. Why is the difference in miles between degrees of longitude much greater than between degrees of latitude? What is the length of a degree of longitude at the Equator and at the South Pole?

4. What is twilight? How is it caused? Why is its duration longer in some parts of the globe than in others? In what region is the duration least?

5. Write a descriptive essay on each of the following localities: Westland, the Thames gold-field, the Bluff.

6. Give a description of Japan and Corea. Draw a sketch-map showing their relative positions. Indicate the chief cities and the most important places in each.

7. Draw a map of the Baltic and White Seas, with their islands. Indicate the countries that form their shores, with the position of the chief harbours and fortifications. Describe the chief natural features, and name the principal exports.

8. Give an account of the lake-system of Equatorial Africa, and show, as fully as you can, in what way the discharge-waters reach the sea.