1 Divide 29.58132 by 5.769803 and multiply the quotient by 46.8795. Find the result correct to three places of decimals, using the contracted method in each case.

2 If the subtrahend is an odd number the product of the minuend and the remainder will be an even number. Give proof when the minuend is (a) odd, (b) even.

3 A boy was hired to sell 50 oranges on condition that he receive ½ commission for every orange that he sold and forfeit 2½ for every orange that he ate; his whole commission was 16½. How many oranges did he eat? Give full analysis in words.

4 A, B and C invest $3870 in a store; ¹⁄₄ of A's share is equal to ¹⁄₅ of B's and to ¹⁄₆ of C's. Repairs cost $98.70 a year and taxes are at the rate of 1%. The store rents so as to pay 4% net on the investment. For how much does the store rent and how much does each partner receive?

5 A cylindric tank 3½ feet in diameter and 5 feet high is filled with snow; if 1 quart of snow will make ½ of a pint of water, how many gallons of water will result from melting the snow and how deep will the water be in the tank?

6 A man travels from New York, longitude 74° west, for 8 days 6 hours, when he finds that his watch, which gains 3 minutes a day, is 8 hours 20 minutes 10 seconds slow; what longitude has he reached?

7 When exchange is at 1½% discount, express the equivalent of $500 in (a) English pounds, (b) French francs, (c) German marks.

8 If ¼ of the time past noon is the time to midnight, what is the time? Give analysis in full.

9 A standard candle is 3 feet and an electric light 12 feet from a wall on which they cast shadows of equal intensity;
find the candle power of the electric light. [The intensity of light varies inversely as the square of the distance from the source of illumination.]

10 Find the amount of $1000 for 5 years at 4% compound interest. Show the application of geometric progression to this example and write the formula used in solving by this method.

11 Find the difference between the proceeds of a bank note for $800 due in 90 days without interest and the present worth of a debt of $800 due in 90 days.

12 A man has $1600 invested in Erie first preferred stock at 80 that pays a semiannual dividend of 2%, and $980 in Union Pacific first preferred stock at 98 that pays a semiannual dividend of 2%; he sells the above stocks at cost and invests the proceeds in United States steel first preferred stock at 86, thereby increasing his annual dividend $90; find the per cent of quarterly dividend that the steel stock pays.