

## PUPIL-TEACHERS AT END OF FOURTH YEAR.

## ARITHMETIC.

## MALES.

1. On selling 4 dozen cucumbers for 13s. 0d., a profit was made equal to three-tenths of the money laid out in buying them. What ought the price charged per cucumber to the customer to have been in order that 60 per cent. should be gained?
2. What is meant by "discount"? What is the discount on £1,250., due 9 months hence, at  $5\frac{1}{2}$  per cent.?
3. In 3 years, at 4 per cent., what sum would £1,080. amount to at compound interest?
4. If by selling an article for 8s. 3d. I lose  $17\frac{1}{2}$  per cent., what should I have sold it for to gain 40 per cent.?
5. Explain the following quotation from the *Times* of November 29:—"Consols opened this morning at a fresh decline of an eighth, and ultimately experienced a further fall. The first bargains were at  $89\frac{3}{4}$  to  $\frac{1}{2}$ , and the last at  $89\frac{1}{4}$  to  $\frac{3}{4}$ . For the 7th of December the final quotation was  $87\frac{3}{4}$  to 88 ex. div."

## FEMALES.

1. A house which cost £1,500 lets for £65 a year; the outgoings for insurance, &c., amount to  $\frac{1}{4}$  per cent. on its cost; what rate of interest does it pay?
2. An innkeeper uses a quart measure which is too small by  $\frac{3}{375}$  of a pint; of how much will he defraud his customers in selling a butt of beer if he charges  $2\frac{1}{4}$ d. for a pint?
3. The sales of a bookseller amount to £25,000; one-fourth of the sales are made at a profit of 25 per cent., seven-tenths at a profit of  $16\frac{2}{3}$  per cent., and the remainder at a loss of 25 per cent. Find the cost of the stock sold.
4. Three cowkeepers hire a pasture for £35 7s. 6d. for 26 weeks; during the time A puts 7 cows in it for 13 weeks, B 14 cows for 9 weeks, and C 3 cows for 22 weeks. How should they divide the rent?

## GRAMMAR.

1. "Be useful where thou livest, that they may  
Both want and wish thy pleasing presence still.  
Kindness, good parts, great places, are the way  
To compass this. Find out men's wants and will,  
And meet them there. All worldly joys go less  
To the one joy of doing kindnesses."  
—GEORGE HERBERT, 1633.
- (a) Write out the meaning of the above in your own words.
- (b) Parse the words in italics.
- (c) Analyze the first two lines.
- (d) How is the word *that* used in the first line? Give examples of the different ways in which the word *that* is employed.
2. Mention some of the classes of words in our language which are generally of Latin origin. Give examples.

## GEOGRAPHY.

1. Draw a full map of Africa, to the east of the 30th meridian of east longitude—that is, to the east of Alexandria on the north, and of Port Natal on the south.
2. Describe fully the great mountain chains of America, and trace the courses of the principal rivers that rise in them.

One Hour allowed for Females.

Two and a Half Hours allowed for Males.

## HISTORY.

1. How were the Jews treated under Richard I.? Explain the feeling towards them.
2. By what authority were the Stuarts restored in 1660, and William and Mary placed on the throne in 1689?
3. Mention the chief military achievements of this country from 1704 to 1709, and explain the cause of the war of the Spanish succession.

## EUCLID.

(The only abbreviations admitted for "the square on AB" is "sq. on AB," and for "the rectangle contained by AB and CD," "rect. AB, CD.")

1. If the sides of any hexagon be produced to meet, the angles formed by these lines are altogether equal to four right angles.
2. If a straight line be divided into two equal parts, and also into two unequal parts; the rectangle contained by the unequal parts, together with the square on the line between the points of section, is equal to the square on half the line.
3. If a straight line be bisected, and produced to any point, the square on the whole line thus produced, and the square on the part of it produced, are together double of the square on half the line bisected, and of the square on the line made up of the half and the part produced.

## ALGEBRA.

1. Reduce  $\left(\frac{x^2-9x+20}{x^2-6x}\right)\left(\frac{x^2-13x+42}{x^2-5x}\right)$  to the simplest form.
2. Solve the equations:—  
(1)  $\begin{cases} ax=by \\ x+y=c \end{cases}$   
(2)  $12x^2=x+1740$ .
3. Find two numbers in the proportion of 8 : 5 the product of which is 360.

## MENSURATION.

1. The paving of a semi-circular alcove with marble at 2s. 6d. a foot came to £10; what was the length of the semi-circular arc?
2. Find the area of a regular hexagon whose side is 15 feet.

## Practical Department.

## DON'T FRET.

Do you get angry? Do you fret and fume when things don't go to suit you? Henry J. Raymond, with his wide and varied experience, said he had never seen anything in the world worth fretting or getting angry about. He is a weak man who frets, or allows his better common-sense to be overcome by anger. He is the strong man who always holds the helm of his passions, and steers his vessel whither-soever he will. "Patience is strength; impatience is weakness." How many of us are strong? How many teachers stand in their school-rooms fretting at the faults of their pupils, instead of being a stalwart of dignity and power—to lead into better paths. Life is too short to fret it away, joy and peace are too valuable to be sacrificed on such an inferior Moloch. Don't fret. Don't get angry. Rise above it. Stand!

"Stand like an anvil!" when the strokes  
Of stalwart men fall fierce and fast.  
Storms but more deeply root the oak,  
Whose brawny arms embrace the blast."

Don't say you can't, and wear the garb of manhood. If you are unequal to the contest, place yourself where you belong: with the brute force of the world. God gave these elements of wrong to us that we might overcome and be strong. There could be no strength without effort; and no effort if there were nothing to contend for. Therefore if you have these elements in your nature in a pre-eminent degree, thank God, and control them, and then you grow strong perforce. One of the real joys of life is to overcome its weak places. We all have them, and if we bridge them over by judicious management and an inflexible will, we may make a safe passage for ourselves and all whom we attempt to lead. Years ago, when we came near sapping the best powers of our mind by fretting, a lady friend asked us why we fretted so much, and what good it accomplished? We excused ourselves on the plea of poor health and a multiplicity of cares. We finally agreed to make the effort, and every time we began to fret our friend was to sing. We found ourselves not so peevish as we supposed, and that a little effort would overcome a bad fault. If you are a fretter, get some one to sing for you. If you get angry and lack control of yourself, sing "Old Hundred" every time you have a paroxysm, and we will guarantee a cure.—*Mich. Moderator.*