

7. (a) Write out, dividing into feet and marking the quantity of every syllable, and the principal caesura of each verse, the first four lines. (b) Give the principal parts of *frangitur*, *scindit*, *minantur*, *tenent*, *collectis*. (c) Account for the following ablatives: *cursu*, *oblectu*, *silvis*, *axo*, *morsus*, *navibus*, *sale*.

### MATHEMATIC.

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1. Describe a parallelogram that shall be equal to a given triangle, and have one of its angles equal to a given angle.

2. Parallelograms upon equal bases and between the same parallels are equal.

3. If a straight line be divided into two equal and also into two unequal parts, the rectangle contained by the two unequal parts, together with the square on the line between the points of section, shall be equal to the square on half the line.

4. Divide a straight line into two parts, so that the rectangle contained by the whole line and one part shall be equal to the square on the other.

5. Prove that the straight line which bisects any chord of a circle perpendicularly passes through the centre of the circle.

6. Equal chords in a circle are equidistant from the centre.

7. Find the factors of (1)  $9x^2 + 9x + 2$ .

$$(2) 4(ab - cd)^2 - (a^2 + b^2 - c^2 - d^2)^2.$$

$$(3) x^3 y^3 - 512.$$

8. Simplify  $\frac{4}{x-1} + \frac{x-1}{x}$   
 $\frac{1}{x-1} - \frac{1}{x}.$

9. Solve the equations:

$$(a) \frac{1}{x-a} + \frac{2}{x-b} = \frac{3}{x-c}.$$

$$(b) 4x^2 - 25x - 21 = 0.$$

$$(c) \frac{4}{x} - \frac{3}{y} = 5.$$

$$\frac{6}{x} + \frac{3}{y} = 10.$$

10. The sum of  $\frac{3}{4}$  of  $\frac{3}{4}$  and  $\frac{3}{4}$  of  $\frac{3}{4}$  is equal to how many times their difference.

11. The whole time occupied by a train 150 yards long in crossing a bridge at the rate of 25 miles an hour is 20 seconds; find the length of the bridge.

12. Find the compound interest on \$1500 for 3 years at 5 per cent.