

## Shrewsbury School.

*(Begin as early in the paper as you can, but do not start on a question unless you are fairly certain that you know how to do it.)*

1. Solve  $x^2 - y^2 + 3y = 1$  ;  $x = 2y - 1$ .
2. Solve  $3x^2 - 8x + 3 = 0$  correct to 1 dec. place.
3. Prove that equal chords of a circle are equidistant from the centre.
4. State the Theorem of Pythagoras. Prove the converse.
5. Simplify  $\frac{3x}{x-y} + \frac{3x}{x+y} - \frac{6y^2}{x^2+y^2}$ .
6. Prove that the diagonals of a parallelogram bisect each other.
7. (i) Eggs are bought at  $a$  for 1/-. What is the price in pence of 3 dozen ?  
(ii) A man walks  $x$  miles in  $y$  minutes. What is his speed in miles per hour ?
8. Factorise (i)  $6a^2 - ab - 12b^2$   
(ii)  $(3x+8)^2 - (2x-3)^2$   
(iii)  $p^2 - pqr - pr + qr^2$ .
9. Prove that the angles at the base of an isosceles triangle are equal.
10. Find the cost of 1 ton 12 cwt. 56 lbs. of coal at 48/9 per ton.
11. Solve  $3x + 5y = 7$  ;  $5x + 3y = 1$ .
12. Prove that straight lines which are parallel to the same straight line are parallel to one another.
13. What is 5% of £14 3s. 4d. ?
14. Solve  $\frac{2x+1}{7} - \frac{3x+2}{4} + 5 = 0$