

Albert Town High school  
Mathematics Department Practice Paper  
Transposition of formulae

Answer all questions. All relevant working must be shown. This paper is due on Thursday Nov 15

1 Make  $p$  the subject of the formula  $r = \sqrt{\frac{4+3p^2}{s}}$

2 Given  $m = \frac{\sqrt{1-n^2}}{n}$  express  $n$  in terms of  $m$

3 If  $\frac{1}{R} = \frac{1}{v} - \frac{2}{t}$  express  $v$  in terms of  $r$  and  $t$

4 Given that  $x = \frac{y-2}{y-3}$  express  $y$  in terms of  $x$

5 Make  $y$  the subject of the formula  $\sqrt{\frac{ym}{t}} = 3b$

6 If  $\frac{p}{s} = \frac{q}{s} + r$  express  $s$  in terms of  $p$ ,  $q$  and  $r$

7 Given that  $\frac{2x}{3} + \frac{4}{y} = 1$  express  $y$  in terms of  $x$

8 Given that  $s - 3t = rt$

(a) Express  $t$  in terms of  $r$  and  $s$

(b) Calculate the value of  $t$  when  $r = 2$  and  $s = 15$

9 (a) given that  $r = \frac{2p^2}{q-3}$  rearrange the formula to make  $q$  the subject

(b) Find the value of  $q$  when  $p = 5$

10 Make  $R$  the subject of the formula  $A = \pi \left(\frac{R-r}{2}\right)^2$