

**HIGHER TIER
MINI PRACTICE EXAM 4**



**NON-CALCULATOR
20 MINUTES ALLOWED**

1.
Radcliffe High School and Eccles College are schools.
The ratio of boys to girls at both schools is 3:2.
Radcliffe High School has 282 boys.
Eccles College has 216 girls.
Work out the total number of students at the schools.

(4)

2.
The first four terms of a linear sequence are 3, 9, 15 and 21.
Carly says “169 is a term in the sequence”.
Is Carly correct?

(3)

3.
Show that $\tan(30) \times \sin(60) = \cos(60)$.

(4)

4.

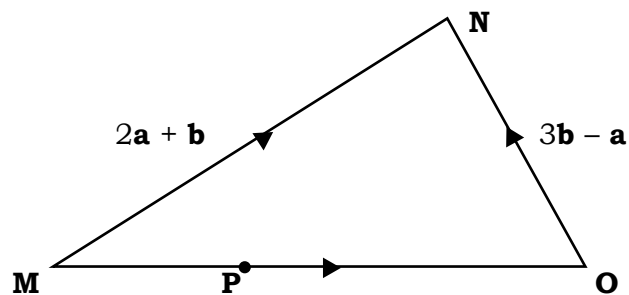
Prove that $4(x + 2)^2 - x(3x + 8)$ is a square number for all values of x .

(4)

5.

MNO is a triangle.

P is the point on MO such that $MP : PO = 1 : 3$.



Find the vector \overrightarrow{PN} in terms of \mathbf{a} and \mathbf{b} .

(5)