Analytical Geometry: Lines & Inclination (Grade 11)

MEMORANDUM

Name: ..... Class: .....

Date: .....

MARK ____ / 18

Answer all questions. Show all your working — marks are awarded for method as well as the final answer. **Teacher copy: accept any correct equivalent method.**

1 Determine the gradient of the line through A$(-1\ ;\ 2)$ and B$(3\ ;\ 10)$. **(2)**

$\frac{10-2}{3+1} = 2$ ✓✓ (2)

2 Determine the equation of the line through A$(-1\ ;\ 2)$ and B$(3\ ;\ 10)$. **(3)**

$y = 2x + 4$ ✓✓✓ (3)

3 Determine the length of AB where A$(-1\ ;\ 2)$ and B$(3\ ;\ 10)$. **(2)**

$\sqrt{4^2 + 8^2} = \sqrt{80} = 4\sqrt{5} \approx 8{,}94$ ✓✓ (2)

4 Determine the midpoint of AB where A$(-1\ ;\ 2)$ and B$(3\ ;\ 10)$. **(2)**

$(1\ ;\ 6)$ ✓✓ (2)

5 Determine the equation of the line through $(2\ ;\ 5)$ perpendicular to $y = 2x + 4$. **(3)**

$m = -\frac{1}{2} \rightarrow y = -\frac{1}{2}x + 6$ ✓✓✓ (3)

6 Determine the equation of the line through $(0\ ;\ 1)$ parallel to $y = 2x + 4$. **(2)**

$y = 2x + 1$ ✓✓ (2)

7 Determine the angle of inclination of $y = 2x + 4$ (one decimal). **(2)**

$\tan\theta = 2 \rightarrow \theta \approx 63{,}4°$ ✓✓ (2)

8 Determine the angle of inclination of a line with gradient -1. **(2)**

ref $= 45°$, obtuse $\rightarrow \theta = 135°$ ✓✓ (2)

TOTAL: 18 marks

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