DIFFERENTIATION & FUNCTIONS (Q 6, 7 & 8, PAPER 1)

LESSON NO. 11: LINEAR GRAPHS



2006

6 (b) The temperature, *C*, in degrees Celsius, of a liquid in an insulated container is related to time *t*, in hours, by

C = 86 - 6t.

- (i) Draw the straight line graph of this relation, putting *t* on the horizontal axis, for $0 \le t \le 8$.
- (ii) Use your graph to estimate the temperature when t = 5.5 hours.
- (iii) Use your graph to estimate the time it takes for the temperature to fall from 80 degrees to 60 degrees.

1998

6 (b) The speed, *v*, in metres per second of an engine moving along a track is related to time, *t*, in seconds by

 $v = \frac{1}{3}(2t+5).$

- (i) Draw the straight line graph of this relation, putting *t* on the horizontal axis, for $0 \le t \le 8$.
- (ii) Use your graph to estimate the speed when t = 2.5 seconds.
- (iii) Use your graph to estimate the time at which the speed reaches 6 metres per second.

Answers				
2007	6	(b) (i) 6 minutes	(ii) 5 degrees	(iii) $k = -6$
2006	6	(b) (ii) 53 degrees	(iii) 3.3 hours	
1998	6	(b) (ii) 3.3 m s^{-1}	(iii) 6.5 s	