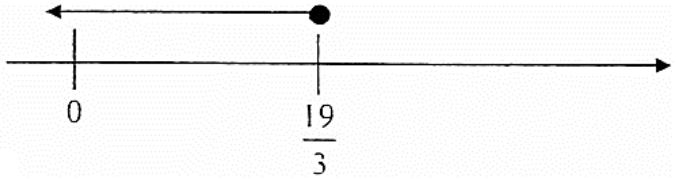
5 MUST KNOW QUESTIONS TO *CONQUER*

Linear Inequalities

1	Solve the inequality $5(x-3)-2(x-6) \leq 4$.	
2	Given that $2x + \frac{x}{3} \geq 28$. (a) Solve the inequality. (b) Hence state the smallest value of x if x is a prime number.	
3	(a) Solve the inequality $4 - 3x \geq -15$ and represent its solution on a number line given. (b) State the (i) greatest rational number, (ii) smallest prime number.	
4	Given that $3 \leq a \leq 5$ and $-2 \leq b \leq 4$ and that a and b are integers, find (i) the smallest possible value of ab, (ii) the smallest possible value of $a^2 + b^2$, (iii) the biggest possible value of $a - \frac{b}{a}$,	
5	The school pays \$2000 as a subsidy of the admission ticket for the students and teachers visiting the Science Centre. The price of one ticket and adult ticket is \$11.50 and \$20 respectively. A total of 4 teachers will be following the students. (a) Given that x represents the number of students, write an algebraic expression for the total cost of x students. (b) Form an inequality in terms of x. (c) Solve the inequality and find the maximum number of students who can enjoy the subsidy.	[1] [1] [2]

Answer Key

1	Solution: $5(x-3)-2(x-6) \leq 4$ $5x-15-2x+12 \leq 4$ $3x-3 \leq 4$ $3x \leq 7$ $x \leq \frac{7}{3}$ $x \leq 2\frac{1}{3}$ Ans: $x \leq 2\frac{1}{3}$	
2	Solutions: (a) $x \geq 12$ $\frac{7}{3}x \geq 28$ $x \geq 12$ Ans: (a) $x \geq 12$ (b) 13	
3	Ans: (a)  (b) (i) $\frac{19}{3}$ (ii) 2	
4	Ans: (i) the smallest possible value of ab $ab = -10$ (ii) smallest possible value of a^2+b^2 $a^2+b^2=9$ (iii) biggest possible value of $a-\frac{b}{a}$ $a-\frac{b}{a}=5\frac{2}{5}$	
5	Solution: (c) $11.5+80 \leq 2000$ $11.5x \leq 1920$ $x \leq 166\frac{22}{23}$ 166 students will benefit from the subsidy. Ans: (a) 11.5x (b) $11.5x+80 \leq 2000$ (c) 166 students	